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THE CLASSIFICATION OF THE
TRICHOGRAMMATIDAE
(HYMENOPTERA: CHALCIDOIDEA)

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INTRODUCTION

The minute, parasitic wasps which comprise the family Trichogrammatidae are widespread, abundant, and obviously successful organisms that form a morphologically unique segment of the superfamily Chalcidoidea. Their small size reflects their mode of development as internal parasites of various insect eggs. Thus the adults of *Megaphragma* may measure no more than 0.18 mm. in total length for they develop within the eggs of thrips. The minuteness of such winged and vagile insects has undoubtedly increased their chances of dispersion by wind. Evidence suggesting this is seen in the world-wide distribution of trichogrammatids and in their usual occurrence as part of the arthropod fauna on small, remote, and isolated oceanic islands. Large numbers of species and individuals are regularly taken in suction traps designed to sample insects from a passing column of air.

Not only are trichogrammatids likely to become potential colonists by being carried by wind into new areas, but the group as a whole appears to have had sufficient genetic plasticity to exploit a tremendous variety of host insects in very diverse habitats. Some trichogrammatids are adapted to hosts in hot, dry deserts while others have become aquatic to attack eggs of such insects as dragonflies or water beetles.

Trichogrammatids that closely resemble modern species have been found in Oligocene amber from Chiapas, Mexico, and it is probable that the basic habit of development in the eggs of other insects is at least 30,000,000 years old. However, very little is known about the actual role of trichogrammatids in natural communities, and an ecological appraisal is badly needed. Such a study requires the accurate identification of the organisms involved but there has not been any reliable system for classifying the Trichogrammatidae. To remedy this situation the authors independently and simultaneously undertook a revision of the Trichogrammatidae and then subsequently learned of the other's studies through Dr. Geoffrey Kerrich of the Commonwealth Institute of Entomology. At that point we joined forces to collaborate in this endeavor. This was an especially timely association because one of us (G. V.) was involved in an examination of the types of the European material and the other (R. L. D.) had traveled to Australia to study the Girault collection housed at the Queensland Museum and had examined the North American types at the U.S. National Museum. In addition Dr. D. P. Annecke had made available a large collection of trichogrammatids from South Africa and we both had substantial collections in each of our home institutions. This combination of fortuitous circumstances presented us with an extraordinary opportunity to evaluate the classification of the entire family from a world-wide basis. The last attempt to do this was made by Girault (1912, 1913). Subsequently many genera and species have been described, and although there have been some important accounts of the palearctic fauna by Kryger (1918) and especially by Nowicki (1935, 1936, 1940) no thorough treatment of the family from a world-wide basis has been made.

ACKNOWLEDGMENTS

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MOUNTING TECHNIQUE

The small size of Trichogrammatidae requires that particular attention be paid to the careful preparation of specimens for examination. First it is essential that trichogrammatids be permanently mounted on glass slides and never on points or "tags." Next, it is very important that the specimen be mounted in such a manner that the characters of the antennae and wings are clearly seen. If only a single specimen is available, then a lateral mount of the body is preferred. When there is a series of specimens, then a preparation which permits a dorsal view of the body is also desirable.

Although there are a number of adequate procedures for mounting these tiny insects in such media as Canada Balsam or Gum Damar, experience has proved the following technique to be quite satisfactory for the permanent mounts of type specimens: (1) Specimens should be placed in 70 percent alcohol immediately after collection and they can be stored indefinitely in this solution. (2) Remove the specimen from the alcohol and place in a small amount of 10 percent KOH for only a few minutes (no more than five). If the specimen has been dried or tag-mounted the wings should be removed before immersion in the KOH. After severing the wings, but before removing the body from the tag-mount, it is advisable first to soften it with the application of a small amount of the KOH. While exposure to KOH for more than a few minutes will adversely affect the wings it will restore to natural shape the antennae of dried specimens that have become shriveled or distorted. (3) Remove the specimen from KOH and wash in glycerine. The specimens may be held in glycerine for a long time without damage. (4) Mount the specimen in Liquid Faure on a glass slide, paying particular attention to the arrangement of the wings and antennae before the cover-slip is applied. If the wings have been removed from a dried specimen they

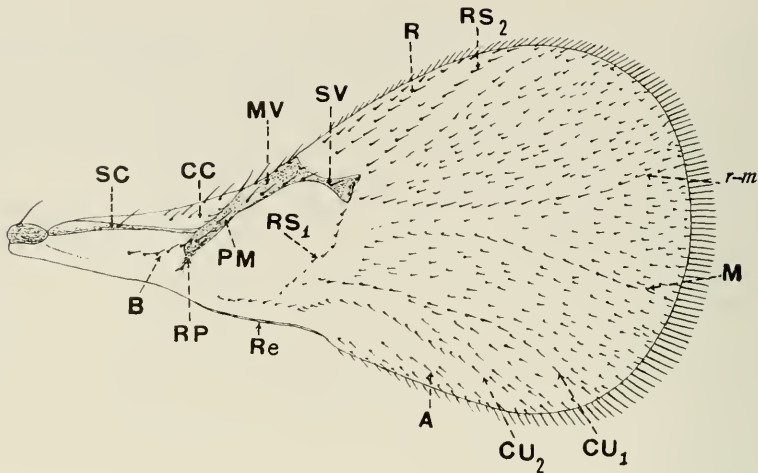


FIGURE 1. Forewing, female, *Ufens niger* (Ashmead). All cilia are drawn irrespective of the surface from which they originate. Any attempt to distinguish cilia on the upper surface from those on the lower surface is unnecessarily confusing and serves no useful purpose taxonomically. SC = subcostal vein; CC = costal cell; PM = premarginal vein; MV = marginal vein; SV = stigmal vein; R = radius; RP = radial process; B = basal vein track; RS₁ = Radial Sector (vein tract 1st Abscissa); RS₂ = Radial Sector (vein tract 2nd Abscissa); r-m = r-m crossvein track; M = median vein track; Cu₁ = first branch of cubital vein track; Cu₂ = second branch of cubital vein track; a = anal vein track; Re = Retinaculum.

can be mounted directly in Liquid Faure without the intermediate steps. The slides should be stored flat for several weeks until the mount has become permanently set.

The formula for Liquid Faure is as follows: Chloral Hydrate 100 g., Glycerine 40 g., Gum Arabic 60 g., H₂O 100 g.

THE CLASSIFICATION OF THE HIGHER CATEGORIES

There is not complete agreement among modern taxonomists on the classification of the higher categories of the Chalcidoidea. Although there is a consensus that the Trichogrammatidae and the Eulophidae are related, the closeness of this relationship is in dispute. This resolves itself into the question of whether the Trichogrammatidae should be treated as a separate family or as a subfamily of the Eulophidae. Regardless of the ultimate placement of the Trichogrammatidae they certainly are a very distinct and easily recognizable segment of the Chalcidoidea. It is very unlikely that a trichogrammatid would ever be unrecognized as such and mistakenly placed in another category. This is not the situation with several other groups of the Chalcidoidea where the boundaries between families, especially in the male sex, are often less distinct. For this reason we believe that the Trichogrammatidae form a separate, distinct, and easily recog-

nized family of parasitic wasps. We define them by the combination of the following characters:

TRICHOGRAMMATIDAE. Small to minute chalcidoid wasps parasitic in the eggs of other insects; tarsi three-segmented in both sexes, without strigil on foretarsus; abdomen broadly joined to metathorax and penetrated by a large muscle-bearing mesophragma; forewings fringed with marginal cilia, these longer on hindwings; forewing blade with variable trichiation, but often with discal setae arranged in lines or vein tracks, which are the vestiges of former veins; antennae short, with sockets low on face; scape held in facial scrobe, antenna elbowed at junction of scape and pedicel; flagellar segments highly variable between genera, but not exceeding total of seven in female antennae; flagellum typically with one or two annelli; funicle may be present or absent, if present never exceeding two segments; club composed of one to five segments; male antennae similar to females in most genera, but a few genera (*e.g.*, *Ufens*, *Trichogramma*) with marked sexual dimorphism in antennal structure.

SUPRAGENERIC CATEGORIES. Although there are several major genera which clearly reflect separate phylogenetic branches of the Trichogrammatidae, we can see no merit in attempting to fit these and their allied genera into a procrustean bed of arbitrary and artificial tribes or subfamilies. Instead, we simply emphasize that the major genera are *Aphelinoidea*, *Oligosita*, *Chaetostricha*, *Trichogramma*, and *Paracentrobia*. These have developed clusters of species that may properly be subgenera, and they have contributed elements to the many smaller and peripheral genera in the family.

KEY TO GENERA AND SUBGENERA

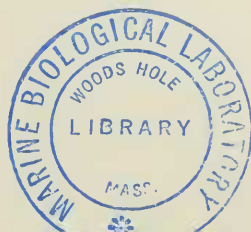
- | | | |
|--------|---|---|
| 1 | Body dorso-ventrally flattened, abdomen very broad | 2 |
| 1' | Body not dorso-ventrally flattened | 3 |
| 2 (1) | Forewing narrow, peculiarly shaped as a flattened sigmoid, marginal cilia very long; forewing disc with single, sparse row of long setae extending distally on wing blade from stigmal vein; antenna with single annellus, single funicle and a 2-segmented, somewhat elongate club; body size unusually small, ranging in length from 0.18 mm. to 0.25 mm.; parasitic in eggs of thrips | |
| | <i>Megaphragma</i> Timberlake, 1923. | |
| 2' | Forewing not extraordinarily narrow nor shaped as a flattened sigmoid; forewing disc with scattered setae; venation extending distad for 60 percent or more of total length of wing blade; stigmal large, broad; small postmarginal vein present; premarginal and marginal veins separated by gap; female antenna with 2-segmented funicle and solid club; male antenna with 3-segmented club; male flagellar segments with large, forward curving bristles | |
| | <i>Australufens</i> Girault, 1935. | |
| 3 (1') | Forewing long and narrow; species parasitic in eggs of aquatic insects | 4 |
| 3' | Forewing not particularly long and narrow, usually increasing in width from apex of venation and apex of retinaculum until apical curvature of wing begins ... | 5 |
| 4 (3) | Forewing very narrow, constantly decreasing in width distally from retinaculum, wing blade somewhat pointed distally; first annellus large, pedunculate; funicle of 2 segments, each longer than wide, first funicle cylindrical, elongate, | |

- longer than second; club 3-segmented, terminating in several rod-like projections; male antenna with whorls of long, forward-curving setae on flagellar segments; parasitic in eggs of Odonata *Hydrophylita* Ghesquière, 1946.
- 4' Forewings not constantly decreasing in width from retinaculum to wing apex; rounded apically *Prestwichia* Lubbock, 1863.
- 5 (3') Female antenna with 3 flagellar segments only, namely a single annellus, a single funicle, and a single club segment 6
- 5' Female antenna with more than the 3 flagellar segments 9
- 6 (5) Marginal vein very short, sometimes not touching anterior border of forewing; stigmal vein broadly sessile, barely projecting from marginal; male antenna with 2 funicle segments, the second bottle-shaped, pedunculate at lower margin apically *Paratrichogramma* Girault, 1912.
- 6' Marginal vein moderately long 7
- 7 (6') Ovipositor exerted for an appreciable distance; stigmal vein subsessile; forewing moderately broad, wing disc with abundant trichiation, no vein tracks; prominent setae on head, thorax, abdomen, legs *Brachista* Walker, 1851.
- 7' Ovipositor not strongly exerted 8
- 8 (7') Forewings devoid of discal setae, somewhat ovoid or almond shaped; stigmal vein subsessile; marginal cilia very long (see too couplet 46') *Epoligosita* Girault, 1916.
- 8' Forewings with discal setae, stigmal vein not subsessile *Doirania* Waterston, 1928.
- 9 (5') Female club 5-segmented; antenna without a funicle 10
- 9' Female club with fewer than 5 segments; funicle may or may not be present 19
- 10 (9) Marginal vein distally curving smoothly from anterior wing margin to form long, slender stigmal vein; middle tibia with long apical spur; scape short and somewhat expanded *Trichogrammatella* Girault, 1911.
- 10' Marginal vein abruptly terminated distally, stigmal vein projecting at sharper angle into wing blade 11
- 11 (10') Antennal club with large, forward-curving spines, some of which are branched *Haeckeliana* Girault, 1913.
- 11' Antennal club without large, branched and forward-curving spines 12
- 12 (11') Antennal scape impressed to receive the large, globular and spinose pedicel; basal 4-club segments fused into a large hemispherical structure bearing stout spines from which the apical club segment is produced as a cylindrical projection bearing several long setae *Hispidophila* Viggiani, new genus.
- 12' Antennal segments not so peculiarly formed, normal, the club more or less spindle shaped with segments distinct and transversely divided 13
- 13 (12') Vein track RS_1 absent 14
- 13' Vein track RS_1 present 15
- 14 (13) Club without an apical process *Abbelloides* Brèthes, 1928.
- 14' Club with an apical process *Lathromeris* Foerster, 1856.
- 15 (13') Forewings very broad, oblately rounded distally 18
- 15' Forewings not so broad and oblate distally 16
- 16 (15') Marginal vein shorter than stigmal vein *Neolathromera* Ishii, 1934.
- 16' Marginal vein much longer than stigmal vein 17
- 17 (16') Marginal cilia long; vein tracks conspicuously converging near apex of retinaculum; club widest at third and fourth segments *Lathromeroidea* Girault, 1912.
- 17' Marginal cilia short; vein tracks not conspicuously converging at apex of retinaculum; club widest at base, tapering to apex *Pterygogramma* Perkins, 1906.

- 18 (15) Maxillary palp 2-segmented; marginal cilia of forewing of moderate length *Ophioneurus* Ratzeburg, 1852.
- 18' Maxillary palp of single segment; marginal cilia of forewing much abbreviated or lacking *Lathrogramma* DeSantis, 1952.
- 19 (9') Marginal vein of female failing to touch anterior border of wing, or the costal cell extraordinarily elongated and extending distally at least one-half the total length of the wing blade 20
- 19' Marginal vein of female coinciding with anterior border of forewing 23
- 20 (19) Forewing with vein track RS_1 lacking 21
- 20' Forewing with vein tracks RS_1 and M distinctly present 22
- 21 (20) Forewing disc nearly devoid of setae; small post-marginal vein present; marginal cilia long, structural venation extending distally for nearly 75 percent of wing blade length; body short, compact; ovipositor short; no funicle; female club 3-segmented, male club 2-segmented *Pseudobrachysticha* Girault, 1915.
- 21' Forewing disc with numerous setae, forewings rounded apically, no post-marginal vein, marginal vein short, failing to attain anterior border of wing; funicle present, club 3-segmented *Asynacta* Foerster, 1856.
- 22 (20') Premarginal and marginal veins distinctly separated by a break; male antenna with whorls of long bristles on funicle and club segments; female antenna with second funicle segment wider than long; foretibia with a row of about seven thorn-like projections on its anterior surface; apical spine of middle tibia compound, branched; mandibles with 4 teeth (see too couplet 73) *Mirufens* (subgenus *Mirufens* Girault, 1915).
- 22' Premarginal and marginal veins continuous, not separated; male antenna similar to female, without whorls of long bristles; foretibia without thorn-like projections *Poropoea* Foerster, 1851.
- 23 (19') Forewing disc with the microtrichia beyond venation short, abundant and dense; randomly distributed or seldom arranged in lines; the abundance of these discal setae on the forewing resembles that usually seen in other families of Chalcidoidea 24
- 23' Forewing disc without such an abundance of short, dense microtrichiae; instead discal setae may be sparse, nearly lacking, or if present then usually arranged in lines or with several complete vein tracks; if not arranged in lines then the discal setae are not so abundant, dense and short 38
- 24 (23) Funicle present 25
- 24' Funicle absent 33
- 25 (24) Marginal vein thickly covered with setae; costal cell wide, somewhat truncated distally by the broad, abrupt basal edge of marginal vein; funicle segments large, wider than long and closely joined; club wide at base, tapering sharply to point apically 26
- 25' Marginal vein not so thickly setaceous nor so wide; costal cell narrow; club not so broad at base, more elongate and not so sharply tapering apically 27
- 26 (25) Marginal vein thrice longer than wide, with numerous setae but few that are large or spine-like, female club 2-segmented, male club may be a single segment, setae on marginal vein continue on to wing beneath marginal vein as a triangular shaped cluster; this group of conspicuous setae is separated from the other setae of wing blade by a bare area extending obliquely and basally from stigmal vein to base of retinaculum on posterior border of forewing (see too couplet 62') *Brachygrammatella* (subgenus *Brachygrammatella* Girault, 1915).

- 26' Marginal vein twice longer than wide, with large spine-like setae; female club of 1 or 2 segments; setae on marginal vein not extending on to wing blade; ovipositor well developed *Brachygrammatella* (subgenus *Pseudbrachygramma* Girault, 1915).
- 27 (25') First funicle segment separated from second funicle, appearing as third annellus; male with enormously enlarged and expanded marginal vein; RS₁ suggested (see too couplet 74) *Pterandrophysalis* Nowicki, 1935.
- 27' First funicle not appearing as third annellus; male without enlarged marginal vein 28
- 28 (27') Club of a single segment, in some species the valvulae are long, upcurved and sabre-shaped *Xiphogramma* Nowicki, 1940.
- 28' Club of more than 1 segment 29
- 29 (28') Club of 2 segments; ovipositor distinctly exerted *Probrachista* Viggiani, new genus.
- 29' Club of 3 segments 30
- 30 (29') Marginal vein shorter than premarginal vein 31
- 30' Marginal vein equal to or longer than premarginal vein, or short postmarginal present 32
- 31 (30) Stigmal vein with constricted neck, rounded apically; premarginal vein with long radial process; retinaculum short; male club may be 2- or 3-segmented *Monorthochaeta* Blood, 1923.
- 31' Stigmal vein broad, short (also see couplet 66) *Paracentrobia* (subgenus *Brachistella* Girault, 1911).
- 32 (30') Funicles both longer than wide (known only from male), short postmarginal present *Ceratogramma* DeSantis, 1957.
- 32' Funicles both wider than long *Szelényia* Nowicki, 1940.
- 33 (24') Forewing with cluster of approximately 14 large, stout, black and conspicuous setae immediately beneath marginal vein and separated from other setae of wing blade by a bare area that extends obliquely from stigmal vein to basal part of retinaculum; hind wings broad; hind femur somewhat expanded; body short, compact *Tumidifemur* Girault, 1911.
- 33' Forewing without such a cluster of setae immediately beneath venation, nor with the obliquely oriented bare area; hind wings not especially broad 34
- 34 (33') Abdomen very long, very much longer than thorax; ovipositor long, with anterior projection into thorax; abdomen somewhat compressed laterally; club 3-segmented *Aphelinoidea* (subgenus *Lathromeroides* Girault, 1913).
- 34' Abdomen not extraordinarily long; ovipositor not projected anteriorly into thorax; club 2-segmented or with partially divided third segment 35
- 35 (34') Scape, pedicel and club very elongate and slender *Aphelinoidea* (subgenus *Thalesanna* Girault, 1938).
- 35' Scape, pedicel and club not extraordinarily long and slender 36
- 36 (35') Stigmal vein broad, often truncate, not reduced to slender apical process 37
- 36' Stigmal vein reduced to a slender process extending from thickened marginal vein; apical club segment dark; wings of male somewhat narrow for genus *Aphelinoidea* (subgenus *Diaclava* Blood and Kryger, 1928).
- 37 (36) Forewing disc beyond venation distinctly patterned with dark areas similar to the encyrtid genus *Habrolepis* *Aphelinoidea* (subgenus *Encyrtogramma* DeSantis, 1957).
- 37' Forewings usually hyaline beyond venation, not distinctly patterned apically *Aphelinoidea* (subgenus *Aphelinoidea* Girault, 1911).

38 (23')	Female club of a single segment, funicle of 2 segments	39
38'	Female club of more than 1 segment	42
39 (38)	Funicle segments wider than long, obliquely divided, not articulated; annellus with short stout spine on dorsal surface; maxilla with numerous conical spines on galea, maxillary palp large, 2-segmented; body short, compact, black	
	..... <i>Apseudogramma</i> Girault, 1915.	
39'	Funicle segments distinctly separated, articulated; annellus without stout dorsal spine	40
40 (39')	Marginal vein curving distally away from anterior border of forewing to extend as a long, slender stigmal vein; setae of forewing disc numerous and arranged in complete lines and vein tracks	41
40'	Marginal vein ending abruptly; setae of forewing disc somewhat sparse; forewings with coarse dark leathery-textured area beneath venation; funicle with very stout setae; abdomen conic-ovate; scutellum with median sulcus; scutum broad, large	
	..... <i>Pseudogrammina</i> Ghesquière, 1945.	
41 (40)	Vein track RS_1 present; male club of single segment	
	..... <i>Trichogramma</i> Westwood, 1833.	
41'	Vein track RS_1 absent; male club of 3 segments; stigmal vein elongate	
	..... <i>Trichogrammatoidea</i> Girault, 1911.	
42 (38')	Funicle of single segment	43
42'	Funicle absent or 2-segmented (first funicle segment may be very small, easily overlooked in <i>Chaetostricha</i>)	48
43 (42)	Wings elongate, or ovate, not greatly broadened apically; club pointed	44
43'	Wings very broad apically, oblatly rounded; discal setae in long lines or complete vein tracks; marginal vein short, thick	47
44 (43)	Antennal club 3-segmented	45
44'	Antennal club 2-segmented	46
45 (44)	Setae of forewing disc sparse, or nearly lacking; marginal vein long, much longer than stigmal vein	
	..... <i>Oligosita</i> Walker, 1851.	
45'	Setae of forewing disc in lines, vein tracks distinct; forewings moderately broad, marginal vein short, subequal to stigmal vein	
	..... <i>Oligositoides</i> Doutt, new genus.	
46 (44')	Forewings rounded apically; abdomen with longitudinal striations; marginal vein long, straight	
	..... <i>Oligosita</i> (subgenus <i>Zorontogramma</i> Silvestri, 1915).	
46'	Forewings somewhat ovoid, pointed apically; entirely devoid of discal setae; abdomen without striations; ovipositor exerted; body small, pale yellow in color (see too couplet 8)	
	..... <i>Epoligosita</i> Girault, 1916.	
47 (43')	Vein track RS_1 present, venation extending distally for one-half length of wing blade, costal cell with setae at distal apex	
	..... <i>Bloodiella</i> Nowicki, 1935.	
47'	Vein track RS_1 absent, venation not extending distally for one-half length of wing blade; costal cell without setae at apex	
	..... <i>Soikiella</i> Nowicki, 1934.	
48 (42')	Funicle absent	49
48'	Funicle present	57
49 (48)	Hind tibia with very large, apical spur reaching middle of last tarsal segment; setae on forewing disc somewhat irregularly arranged; stigmal vein long, slender	
	..... <i>Uscanopsis</i> Girault, 1916.	
49'	Hind tibia without such a large, apical spur	50
50 (50')	Vein track RS_1 absent or indistinct	51
50'	Vein track RS_1 present and distinct	55



51 (50)	Forewing with large bare area extending distad from base of wing blade	52
51'	Forewing without such a large bare area on wing; discal setae more abundant or not arranged in specific and distinct vein tracks	53
52 (51)	Marginal vein long, stigmal vein with constricted neck, apical portion of wing disc entirely bare of setae	<i>Paruscanoidea</i> Girault, 1915.
52'	Marginal vein short, stigmal vein long and without constricted neck	<i>Uscanella</i> Girault, 1911.
53 (51')	Club 3-segmented, ending in rod-like projection; marginal vein gradually expanding distad and abruptly terminated distally	<i>Tumidiclava</i> Girault, 1911.
53'	Club 4-segmented	54
54 (53')	Marginal vein curves distally and convexly to extend as stigmal vein; wings shaped as in <i>Oligosita</i> , not broad at apex	<i>Lathromeromyia</i> Girault, 1914.
54'	Marginal vein distally terminates abruptly, or outer border may curve back concavely before extending as stigmal vein; abdomen and ovipositor elongated; wings rounded and broadened at apex	<i>Giraultiola</i> Nowicki, 1936.
55 (50')	Club 4-segmented	56
55'	Club apparently 3-segmented; ovipositor extends entire length of venter of abdomen; hypogynium well developed	<i>Uscanoidea</i> Girault, 1911.
56 (55)	Ovipositor long, extending entire length of venter of abdomen; hypogynium well developed; marginal vein short, very broad distally; stigmal vein broad, without constricted neck	<i>Zaga</i> Girault, 1911.
56'	Ovipositor short, located in distal half of abdomen; marginal vein not unusually widened distally; stigmal vein with a constricted neck	<i>Uscana</i> Girault, 1911.
57 (48')	Valvifers very elongated within abdomen, often penetrating deeply into thorax; ovipositor very large, frequently very greatly exerted	58
57'	Valvifers not so elongated within abdomen, normal; ovipositor not so extraordinarily developed	60
58 (57)	Marginal fringe of forewing long, over one-half wing width; wings not broadly rounded apically; both funicle segments longer than wide, whorls of long bristles on club segments; foretibia not armed with thorn-like projections	<i>Neocentrobiella</i> Girault, 1915.
58'	Marginal fringe of forewing short, not equaling one-half of width of wing blade, forewings broadly rounded apically; foretibia with one or more thorn-like projections on anterior surface	59
59 (58')	First funicle segment small, scale-like, second funicle long, cylindrical	<i>Chaetostricha</i> Walker, 1851.
59'	First funicle not scale-like but comparatively large and broadly or obliquely fused with second funicle which is usually wider than long, not cylindrical; body size large for Trichogrammatidae, often exceeding 1.00 mm. in length	<i>Thoreauia</i> Girault, 1916.
60 (57')	Female club distinctly 2-segmented	61
60'	Female club 3-segmented, or 2-segmented with a partially divided third segment	63
61 (60)	Stigmal vein elongated with constricted neck; female club 2-segmented, male club 3-segmented	<i>Trichogrammatomyia</i> Girault, 1916.
61'	Stigmal vein short, broad	62
62 (61')	Thorax with median sulcus; ovipositor short, located in distal third of abdomen; body long, 0.80 mm.; scutum long, scutellum short, wide	<i>Brachyia</i> Strand, 1926.
62'	Thorax without median sulcus; marginal vein with cluster of large, gross	

- setae; wings broad apically (see too couplet 26)
Brachygrammatella (subgenus *Brachygrammatella* Girault, 1915).
- 63 (60') Club with two distinct segments and a partially divided third segment; club short, expanded; two funicle segments separate, distinct, but very wide and short, almost disc-like, resembling very wide annelli; ovipositor short; maxillary palp long *Xenufens* Girault, 1916.
- 63' Club with 3 distinct segments 64
- 64 (63') Marginal vein long, straight 65
- 64' Marginal vein short 67
- 65 (64) Two funicle segments distinctly separated, first segment often cylindrical, longer than wide, and longer than second funicle segment; stigmal vein slender, with constricted neck; vein track RS_1 present
Paracentrobia (subgenus *Ittys* Girault, 1911).
- 65' Two funicle segments broadly joined, second funicle wider than long 66
- 66 (65') Forewing disc densely covered with short, randomly distributed setae, not in regular lines, no complete and distinct vein tracks (see also couplet 31')
Paracentrobia (subgenus *Brachistella* Girault, 1911).
- 66' Forewing disc with setae somewhat sparse, more or less arranged in a few lines; substigmal spot usually present; species often yellow or yellow and black
Paracentrobia (subgenus *Paracentrobia* Howard, 1897).
- 67 (63') Marginal vein extremely short, subquadrate 68
- 67' Marginal vein not subquadrate, longer 69
- 68 (67) Wings broadly oblate distally; discal setae abundant, in lines and vein tracks, RS_1 present; stigmal vein distinct, as long as marginal vein; premarginal widely expanded at base, forming triangular structure with the enlarged radial process; sexual dimorphism in antennae, male antenna with whorls of long bristles, male club three segmented, female club pointed
Brachyufens Viggiani, new genus.
- 68' Wings only moderately broad; discal setae sparse; no RS_1 ; stigmal vein a mere expansion of marginal vein; venation not extending distad more than 40 percent of total wing blade length *Urogramma* Girault, 1920.
- 69 (67') Terminal segment of club with sensilla placoidea and upward-curving, pale-colored spines; first funicle segment small, second much larger, maxillary palp 2-segmented 70
- 69' Terminal segment of club without sensilla placoidea and upward-curving spines; club usually with elongate sensoria and elongate forward-pointing setae 73
- 70 (69) Vein track RS_1 present *Neobrachista* Girault, 1912.
- 70' Vein track RS_1 absent 71
- 71 (70') Scape short, expanded; pedicel nearly as long as scape; first funicle very small, nearly scale-like; marginal vein narrower than premarginal, slightly longer than stigmal vein; ovipositor long, slightly exerted; thorax with median sulcus
Xenufensia Girault, 1938.
- 71' Scape not so short and expanded, much longer than pedicel; first funicle small but distinct 72
- 72 (71') Stigmal vein shorter than marginal vein; *r-m* absent; marginal cilia long, equal one-half wing width *Neocentrobia* Girault, 1912.
- 72' Stigmal vein equal to or longer than marginal vein; vein track *r-m* present; marginal cilia short, not equaling one-half of forewing width
Neobrachistella Girault, 1915.
- 73 (69') Funicle segments each longer than wide, cylindrical, distinctly separated; male

	antenna with long, forward-curving bristles (see too couplet 22)	
	..... <i>Mirufens</i> (subgenus <i>Trachocera</i> Blood and Kryger, 1928).	
73'	Funicle segments not both longer than wide, not cylindrical	74
74 (73')	Funicle segments broadly joined or obliquely divided	75
74'	Funicle segments not broadly joined, distinctly separated, first funicle like a third annellus; marginal vein of male forewing swollen enormously (see too couplet 27)	<i>Pterandrophysalis</i> Nowicki, 1935.
75 (74)	Stigmal vein broad, not constricted; marginal vein extraordinarily expanded distally; first funicle segment small, second much larger; funicle transversely divided; male antenna similar to female	<i>Zagella</i> Girault, 1918.
75'	Stigmal vein slender, constricted; marginal vein not extraordinarily expanded distally	76
76 (75')	Maxillary palp 2-segmented; male antenna like female; funicle segments transversely divided, funicle segments rather small	<i>Japania</i> Girault, 1911.
76'	Maxillary palp 1-segmented; male antenna unlike female, flagellar segments of male antenna with whorls of long bristles, male club 4-segmented; funicle segments of female antenna obliquely divided, second funicle with obliquely oriented sensorium	<i>Ufens</i> Girault, 1911.

TABLE OF SUPRASPECIFIC CATEGORIES

(Accepted names in capitals and roman type)

- Abbella* Girault, 1911. (Synonym of *Paracentrobia* Howard, 1897.) New synonymy.
- Abellisca* Ghesquière, 1945. (Unnecessary new name for *Abbella*.)
- ABELLOIDES Bréthes, 1928.
- APHELINOIDEA Girault, 1911.
- Aprobosca* Westwood, 1879. (Synonym of *Trichogramma* Westwood.)
- APSEUDOGRAMMA Girault, 1915.
- ASYNACTA Foerster, 1856.
- AUSTRALUFENS Girault, 1935.
- Austrobelia* Girault, 1923. (Synonym of *Thoreauia* Girault, 1916.) New synonymy.
- Austrobella* Girault, 1928. (Attempted emendation of *Austrobelia* Girault.)
- Austromicron* Tillyard, 1926. (Synonym of *Prestwichia* Lubbock, 1863.) New synonymy.
- BLOODIELLA Nowicki, 1935.
- BRACHISTA Walker, 1851.
- BRACHISTELLA Girault, 1911. (Subgenus of *Paracentrobia*.) New status.
- Brachygramma* Girault, 1912. (Preoccupied, see *Brachyia* Strand, 1926.)
- BRACHYGRAMMATELLA Girault, 1915.
- BRACHYIA Strand, 1926. (New name for *Brachygramma* Girault.)
- Brachysticha* Foerster, 1856. (Synonym of *Brachista* Walker.)
- Brachystira* Mayr, 1904. (Lapsus for *Brachysticha* Foerster.)
- BRACHYUFENS Viggiani, new genus.

- Bruchoctonus* Grese, 1923. (Synonym of *Uscana* Girault, 1911.)
Burksiella DeSantis, 1957. (Synonym of *Zagella* Girault, 1918.) New synonymy.
Calleptiles Haliday, 1833. (Synonym of *Trichogramma* Westwood.)
Centrobia Foerster, 1856. (Synonym of *Chaetostricha* Walker, not of authors.)
New synonymy.
Centrobiella Girault, 1912. (Synonym of *Chaetostricha* Walker, not of authors.)
New synonymy.
Centrobiopsis Girault, 1918. (Synonym of *Lathromeroidea* Girault.) New synonymy.
CERATOGRAMMA DeSantis, 1957.
CHAETOSTRICHIA Walker, 1851. (Not of authors.)
Chaetostrichella Girault, 1914. (Synonym of *Brachista* Walker 1851.)
DIACLAVA Blood and Kryger, 1928. (Subgenus of *Aphelinoidea* Girault.) New status.
DOIRANIA Waterston, 1928.
ENCYRTOGRAMMA DeSantis, 1957. (Subgenus of *Aphelinoidea* Girault.) New status.
EPOLIGOSITA Girault, 1916.
Garouella Risbec, 1956. (Synonym of *Lathromeris* Foerster, 1856.) New synonymy.
Giraultia Steffan, 1954. (Lapsus for *Giraultiola* Nowicki.)
GIRAULTIOLA Nowicki, 1936.
Grantanna Girault, 1939. (New name for *Neocentrobia* Blood, not Girault; synonym of *Ufens*.)
HAECKELIANIA Girault, 1912.
HISPIDOPHILA Viggiani, new genus.
Hydrophylax Matheson and Crosby, 1912. (Preoccupied, see *Hydrophylita*.)
HYDROPHYLITA Ghesquière, 1945. (New name for *Hydrophylax* Matheson and Crosby.)
ITTYS Girault, 1911. (Subgenus of *Paracentrobia* Howard.) New status.
JAPANIA Girault, 1911.
Jassidophthora Perkins, 1912. (Synonym of *Paracentrobia* Howard.)
Krygeriola Nowicki, 1934. (Synonym of *Lathromeroides* Girault.)
LATHROGRAMMA DeSantis, 1952.
LATHROMERIS Foerster, 1856.
Lathromerella Girault, 1912. (Synonym of *Lathromeris* Foerster.)
LATHROMEROIDEA Girault, 1912.
Lathromeroides Girault, 1913. (Subgenus of *Aphelinoidea* Girault, 1911.) New status.
LATHROMEROMYIA Girault, 1914.
Lengerkeniola Nowicki, 1946. (Synonym of *Lathromeroides* Girault.) New synonymy.

- Lutzmicron* Costa Lima, 1960. (Synonym of *Hydrophylita* Ghesquière.) New synonymy.
- MEGAPHRAGMA Timberlake, 1923.
- Microma* Curtis, 1829. (Name only.)
- MIRUFENS Girault, 1915.
- MONORTHOCHAETA Blood, 1923.
- Mooa* Girault, 1930. (Synonym of *Ophioneurus* Ratzeburg.)
- NEOBRACHISTA Girault, 1912.
- NEOBRACHISTELLA Girault, 1912.
- NEOCENTROBIA Girault, 1912.
- Neocentrobia* Blood, 1923. (Preoccupied, see *Grantanna*, new synonym of *Ufens*.)
- NEOCENTROBIELLA Girault, 1915.
- NEOLATHROMERA Ishii, 1934.
- Neotrichogramma* Girault, 1911. (Synonym of *Trichogramma* Westwood.)
- OLIGOSITA Walker, 1851.
- OLIGOSITOIDES Doutt, new genus.
- Oophthora* Aurivilius, 1897. (Synonym of *Trichogramma* Westwood.)
- OPHIONEURUS Ratzeburg, 1852.
- Orthoneura* Blood and Kryger, 1928. (Preoccupied, see *Orthoneurella*.)
- Orthoneurella* Blood and Kryger, 1929. (New name for *Orthoneura* B and K, new synonym of *Tumidiclava*.)
- PARACENTROBIA Howard, 1897.
- Paroligosita* Kurdjumov, 1911. (Synonym of *Oligosita* Walker.)
- Paroligosita* Girault and Dodd, 1915. (Preoccupied, see *Epoligosita*.)
- PARATRICHOGRAMMA Girault, 1912.
- Parufens* Girault, 1913. (Synonym of *Japania* Girault, 1911.) New synonymy.
- PARUSCANOIDEA Girault, 1915.
- Pentarthron* Riley, 1872. (Synonym of *Trichogramma* Westwood.)
- POROPOEA Foerster, 1851.
- Poropoeoides* Nowicki, 1936. (Synonym of *Poropoea* Foerster.) New synonymy.
- PRESTWICHIA Lubbock, 1863.
- PROBRACHISTA Viggiani, new genus.
- PSEUDBRACHYGRAMMA Girault, 1915. (Subgenus of *Brachygrammatella*.) New status.
- PSEUDOBRACHYSTICHA Girault, 1915.
- Pseudogramma* Girault, 1912. (Preoccupied, see *Pseudogrammina*.)
- PSEUDOGRAMMINA Ghesquière, 1945. (New name for *Pseudogramma* Girault.)
- Pseudoligosita* Girault, 1913. (Synonym of *Oligosita*.)
- PTERANDROPHYSALIS Nowicki, 1935.
- PTERYGOGRAMMA Perkins, 1906.
- Ratzeburgalla* Girault, 1938. (Synonym of *Chaetostricha*.) New synonymy.

- Sethosiella* Kryger, 1934. (Synonym of *Megaphragma*.)
 SOIKIELLA Nowicki, 1934.
Stephanotheisa Soika, 1931. (Synonym of *Ufens*.)
 SZELÉNYIA Nowicki, 1940.
Tanygramma DeSantis, 1957. (Synonym of *Aphelinoidea*.) New synonymy.
Tennysoniania Girault, 1920. (Synonym of *Thoreauia* Girault.) New synonymy.
 THALESANNA Girault, 1938. (Subgenus of *Aphelinoidea*.) New status.
 THOREAUIA Girault, 1916.
 TRACHOCERA Blood and Kryger, 1928. (Subgenus of *Mirufens*.) New status.
 TRICHOGRAMMA Westwood, 1833.
Trichogrammatana Girault, 1933. (Synonym of *Trichogramma*.) New synonymy.
 TRICHOGRAMMATELLA Girault, 1911.
 TRICHOGRAMMATOIDEA Girault, 1911.
 TRICHOGRAMMATOMYIA Girault, 1916.
 TUMIDICLAVA Girault, 1911.
 TUMIDIFEMUR Girault, 1911.
 UFENS Girault, 1911.
Ufensia Girault, 1913. (Synonym of *Ufens*.) New synonymy.
 UROGRAMMA Girault, 1920.
 USCANA Girault, 1911.
Uscanagrammatella Girault, 1911. (Lapsus for *Trichogrammatella*.)
 USCANELLA Girault, 1911.
 USCANOIDEA Girault, 1911.
 USCANOPSIS Girault, 1916.
Westwoodella Ashmead, 1904. (Synonym of *Oligosita*.)
Xanthoatomus Ashmead, 1904. (Synonym of *Trichogramma*.)
 XENUFENS Girault, 1916.
 XENUFENSIA Girault, 1938.
 XIPHOGRAMMA Nowicki, 1940.
 ZAGA Girault, 1911.
 ZAGELLA Girault, 1918.
 ZORONTOGRAMMA Silvestri, 1915. (Subgenus of *Oligosita* Walker.)

Genus *Megaphragma* Timberlake

- Megaphragma* TIMBERLAKE, 1923, Proc. Hawaiian Ent. Soc., vol. 5, p. 412.
Sethosiella KRYGER, 1932, Bull. Soc. Ent. Egypte (1932), p. 38.

TYPE SPECIES. *Megaphragma mymaripenne* Timberlake.

TYPE LOCALITY. Oahu, Hawaii.

DISTRIBUTION. Hawaii, southern California, Louisiana, Haiti, Egypt, Belgium Congo, South Africa.

COMMENTS. Three species have been described and each has been found associated with thrips. Although the original description considers the antennal

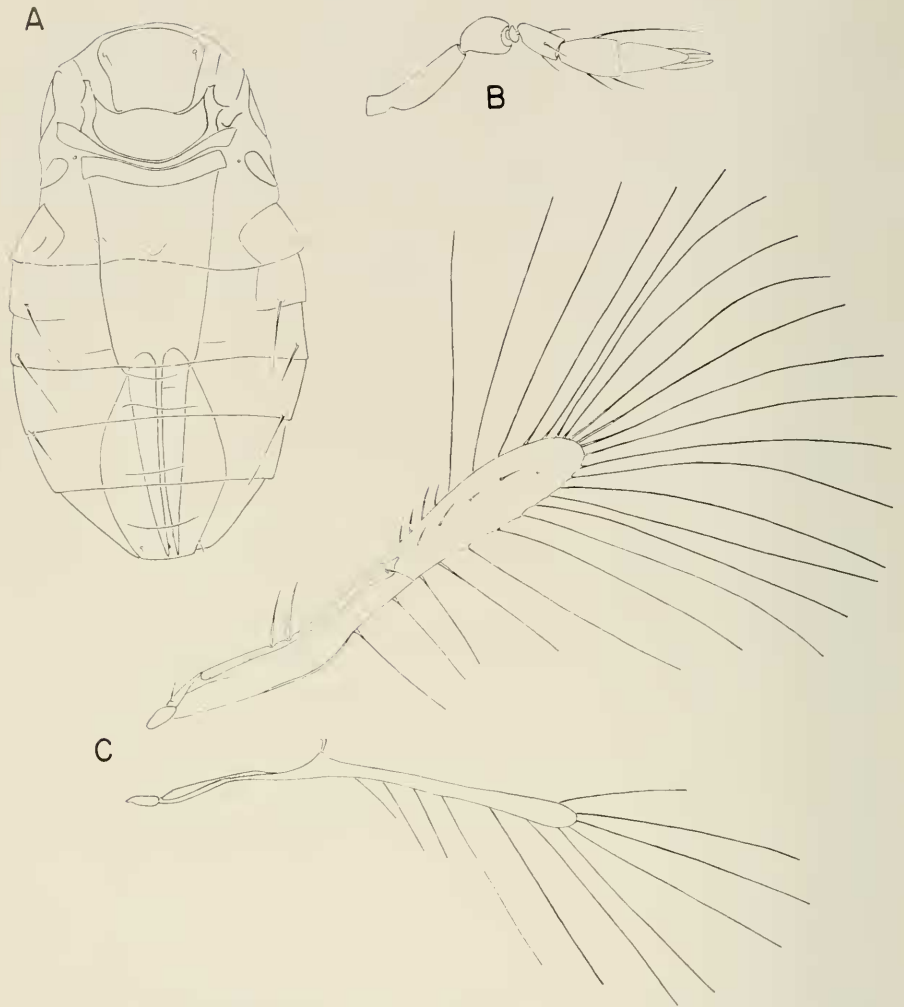


FIGURE 2. *Megaphragma* species, female, African specimen; A. body sketch, dorsal view; B. antenna; C. wings.

club to be three-segmented, our interpretation is that the antenna has a single funicle and a two-segmented club. The club terminates with several apical processes. Hind trochanters are elongated; the articulation of the hind coxa at its base is actually anterior to the base of the middle coxa. The head is bent ventrally beneath the prothorax. The narrow wings with their long marginal cilia and flattened sigmoid shape are unique in the family. Some specimens from California have measured only 0.18 mm. in length and some from Haiti are

reported as only 0.17 mm. in total length. These are probably the smallest of all insects.

The genus is quite distinct both morphologically and biologically. It is not closely related to any other genus, but the antennae and wings have features that suggest a derivation from the same stock that gave rise to the *Oligosita* complex of genera.

SPECIES OF *MEGAPHRAGMA*.

1. *M. ghesquierei* GHESQUIÈRE, 1939, Rev. Zool. Bot. Afr., vol. 33, p. 36.
2. *M. mymaripenne* TIMBERLAKE, 1923, Proc. Hawaiian Ent. Soc., vol. 5, p. 414.
3. *M. priesneri* (KRYGER), 1932, Bull. Soc. Ent. Egypte (1932), p. 40, (*Sethosiella*).

Genus *Australufens* Girault

Australufens GIRAULT, 1935. Microhymenoptera Australiensis Nova, mostly Chalcididae. Privately published, p. 2.

TYPE SPECIES. *Australufens varicornis* Girault, 1935. Monobasic.

TYPE LOCALITY. Scone, New South Wales.

DISTRIBUTION. New South Wales.

COMMENTS. The genus is represented by six female and three male specimens on a slide in the Queensland Museum (T. 6367). The collector was A. P. Dodd; date not given. According to the original description the type series were reared from lepidopterous eggs.

The body is very short, broad, heavily sculptured, dorsoventrally flattened and black in color. Venation of forewing extends distally for nearly two-thirds the total length of the wing blade. The marginal vein is straight and is separated from the premarginal by a slight break. A small postmarginal vein is present. The males have a two-segmented funicle and a three-segmented club; these flagellar segments have whorls of forward curving bristles. The female antenna has two anelli, a two-segmented funicle, and a solid club segment.

Although the relationship of *Australufens* to other genera in the family is not clear, it appears likely that *Australufens* and *Pseudogrammina* may have evolved from the same stock.

SPECIES OF *AUSTRALUFENS*.

1. *A. varicornis* GIRAULT, 1935, Microhymenoptera Australiensis Nova, mostly Chalcididae. Privately published, p. 2.

Genus *Hydrophylita* Ghesquière

Hydrophylax MATHESON AND CROSBY, 1912, Ann. Ent. Soc. Amer., vol. 5, p. 65.

Hydrophylita GHESQUIÈRE, 1946, Rev. Zool. Bot. Afr., vol. 34, p. 371 (new name for *Hydrophylax* Matheson and Crosby, preoccupied by *Hydrophylax* Fitzinger, 1843, in Amphibia).

Lutzmicron COSTA LIMA, 1960, Arg. Inst. Biol., vol. 27, p. 197. *New synonymy*.

TYPE SPECIES. *Hydrophylax aquivolans* Matheson and Crosby.

TYPE LOCALITY. Ithaca, New York.

DISTRIBUTION. New York, Ohio, Brazil, Argentina.

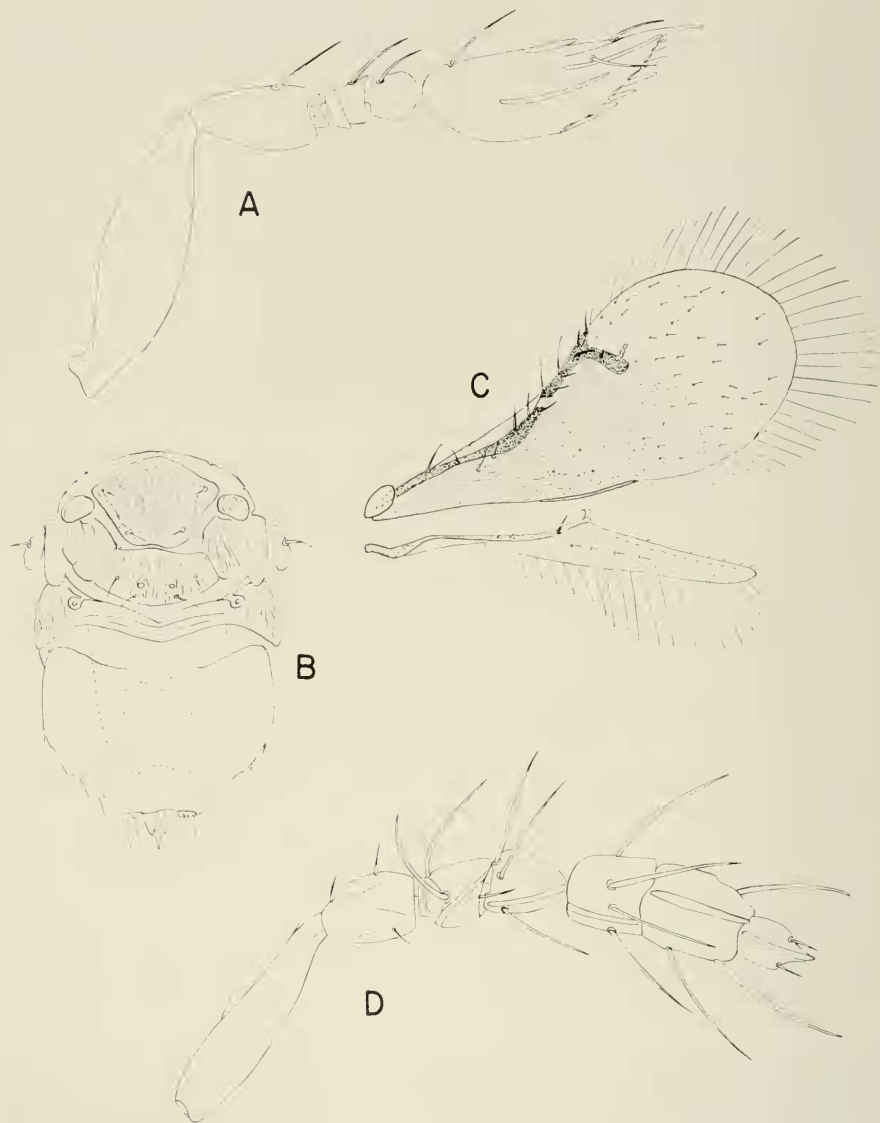


FIGURE 3. *Australufens varicornis* Girault. A. Antenna of female; B. body of female, dorsal view; C. wings of female; D. antenna of male.

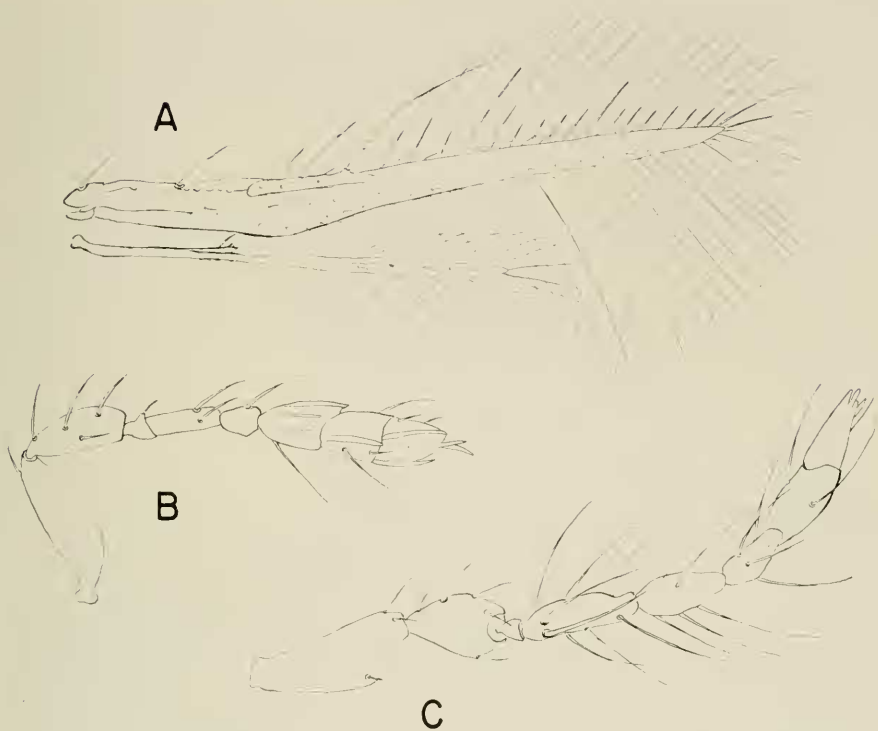


FIGURE 4. *Hydrophylita aquivolans* (Matheson and Crosby). A. Wings of female; B. antenna of female; C. antenna of male.

COMMENTS. There are three species now in this genus, one from North America and two from South America. All species have aquatic habits and attack the eggs of Odonata. It is unlikely that this genus would be confused with anything else because of the long, narrow forewings which taper to a point from the apex of the venation to the tip of the wing blade. The first annellus is large and pedunculate. The South American species have a second annellus closely and obliquely joined to the first funicle segment. While both sexes possess two funicle segments and a three-segmented club, there is sexual dimorphism in the proportions of the respective segments and in their pattern of setae. The genus *Lutzmicron* Costa Lima is obviously so very close to *Hydrophylita* that it cannot be retained as a separate genus. It does have an antennal club which is proportionately longer than *Hydrophylita* and there are more setae on the wing disc. It may possibly be entitled to subgeneric status, but until more material is available the present classification seems proper.

SPECIES OF *HYDROPHYLITA*.

1. *H. aquivolans* (MATHESON AND CROSBY), 1912, Ann. Ent. Soc. Amer., vol. 5, p. 65, (*Hydrophylax*).
2. *H. bachmani* DE SANTIS, 1964, Notas Com. Investigaciones Cien., vol. 2, pp. 3-7.
3. *H. lestesi* (COSTA LIMA), 1960, Arg. Inst. Biol., vol. 27, p. 198, (*Lutzmicron*). (New combination.)

Genus *Prestwichia* Lubbock

Prestwichia LUBBOCK, 1864, Trans. Linn. Soc. London, vol. 24, p. 140.

Austromicron TILLYARD, 1926, The Insects of Australia and New Zealand, p. 279. (New synonymy.)

TYPE SPECIES. *Prestwichia aquatica* Lubbock.

TYPE LOCALITY. England.

DISTRIBUTION. Europe, New South Wales.

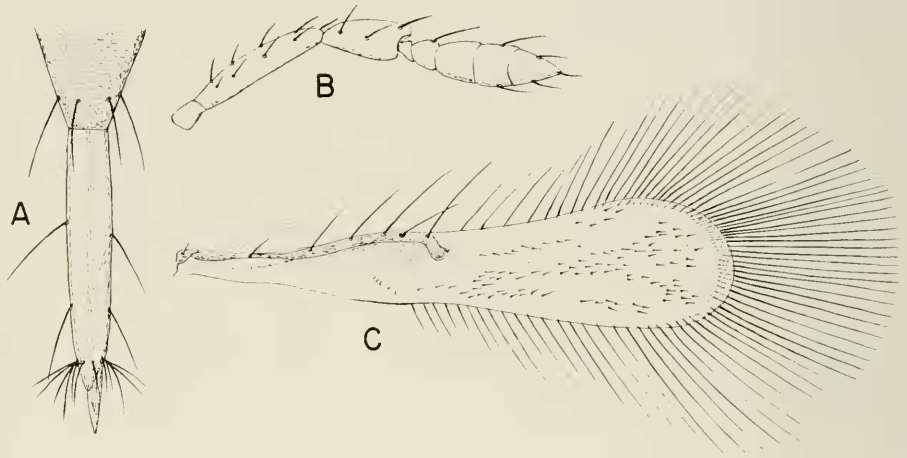


FIGURE 5. *Prestwichia aquatica* LUBBOCK. A. Apex of abdomen; B. antenna of male; C. forewing of female.

COMMENTS. The genus is reported from a number of aquatic insects. It is related to *Oligosita* by the long, straight, marginal vein and the antennal formula of a single funicle and a three-segmented club. The features which distinguish *Prestwichia* from *Oligosita* are its narrow wings, shortened club segments with broadly attached funicle, spiny middle and hind tibiae, long claws, and long setae on dorsum of thorax and head.

SPECIES OF *PRESTWICHIA*.

1. *P. aquatica* LUBBOCK, 1863, Trans. Linn. Soc. London, vol. 24, p. 140.
= *P. brevipennis* Henriksen, 1918, Ent. Medd., vol. 12, p. 169.
2. *P. solitaria* RUSCHKA, 1913, Zeit. Wiss. Insektenbiol., vol. 9, p. 50.
3. *P. zygopterorum* (TILLYARD), 1926, Insects of Australia and New Zealand, p. 279, (*Austromicron*). (New combination.)

Genus *Paratrichogramma* Girault

Paratrichogramma GIRAULT, 1912, Bull. Wisc. Nat. Hist. Soc., vol. 10, p. 82.

TYPE SPECIES. *Paratrichogramma cinderella* Girault.

TYPE LOCALITY. Nelson, Queensland.

DISTRIBUTION. Queensland, Thursday Island (Torres Strait), California, South Africa.

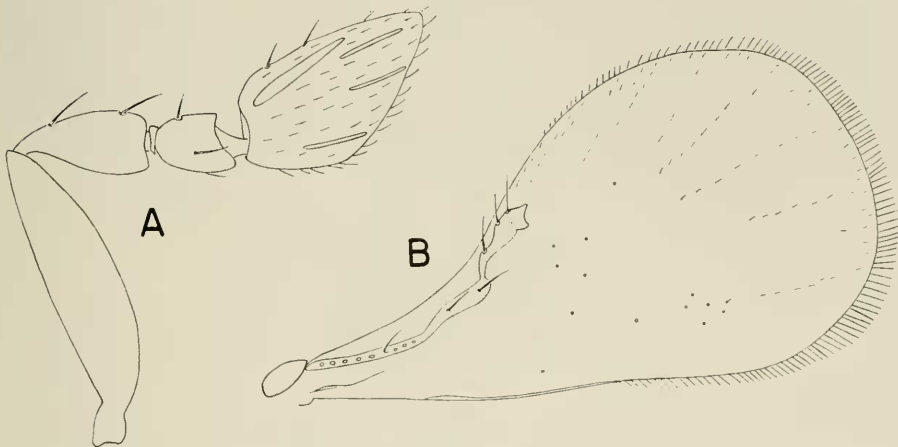


FIGURE 6. *Paratrichogramma cinderella* Girault. A. Antenna of female; B. forewing of female.

COMMENTS. The genus is unique. The marginal venation is very abbreviated and does not reach the anterior edge of the forewing. The female antenna has only a single annellus, a single funicle segment and a solid club. The male antenna has a two-segmented funicle, the second segment of which is unusual in being somewhat bottle-shaped with a projection on the ventral aspect joining the club. There are two described species in Queensland and recent collections have disclosed two new species, one in California and one in South Africa.

SPECIES OF *PARATRICHGRAMMA*.

1. *P. cinderella* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 111-112.
2. *P. fusca* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 112-113. (The type is apparently lost. In the original description the venation appears to be different from *P. cinderella* and they may not be congeneric.)

Genus *Brachista* Walker

Brachista WALKER, 1851, Ann. and Mag. Nat. Hist., vol. 7, p. 211.

Brachysticha FOERSTER, 1856, Hymenopterologische Studien, vol. 2, p. 88.

Brachystira MAYR, 1904, Verh. Zool.-Bot. Ges. Wien, vol. 54, p. 590.

Chaetostrichella GIRAULT, 1914, Mitt. Zool. Mus. Berlin, vol. 7, p. 147.

TYPE SPECIES. No type originally designated, but usage dictates that *B. pungens* (Mayr) be the type species.

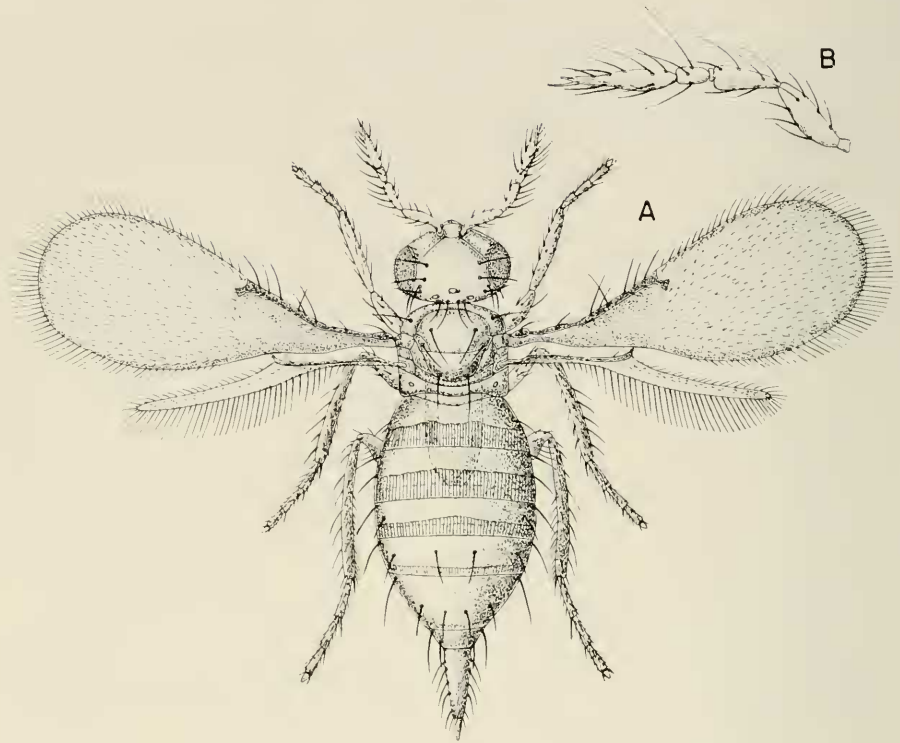


FIGURE 7. *Brachista pungens* (Mayr). A. Adult of female; B. antennal details.

TYPE LOCALITY. Original material must have been collected in Ireland.

DISTRIBUTION. Europe.

COMMENTS. *Brachista* is separable on the following basis: Antenna five-segmented with single annellus, single funicle and a single club segment. This invites comparison with *Doirania* Waterston which has the same antennal formula. Both *Doirania* and *Brachista* have long marginal veins and conic-ovate abdomens, but *Brachista* may be differentiated by the exerted ovipositor, broad wings, and the subsessile stigmal vein. The club in *Brachista* is longer than the scape, the pedicel is elongate and the single funicle is longer than wide. The antennal club has previously been interpreted as having three segments, but there is no true segmentation.

SPECIES OF *BRACHISTA*.

1. *B. pungens* (MAYR), 1904, Verh. Zool.-Bot. Ges. Wien, vol. 54, pp. 590-592, (*Brachysticha*).
= *B. nigra* KRYGER, 1918, Ent. Medd., vol. 12, pp. 335-336.
= *B. platoni* (GIRAULT), 1914, Mitt. Zool. Mus. Berlin, vol. 10, p. 147 (*Chaetostrichella*).
2. *B. rufina* NOWICKI, 1936, Zeit. angew. Ent., vol. 23, p. 127.
3. *B. similis* KRYGER, 1918, Ent. Medd., vol. 12, pp. 336-337.

Genus *Doirania* Waterston

Doirania WATERSTON, 1928, Ann. Mag. Nat. Hist., ser. 10, vol. 2, p. 386.

TYPE SPECIES. *Doirania leefmansii* Waterston.

TYPE LOCALITY. Ambon, Indonesia.

DISTRIBUTION. Indonesia, New Ireland.

COMMENTS. The retention of *Doirania* as a genus distinct from *Oligosita* is based on the structure of the club which is three-segmented and elongated in *Oligosita* but of a single short, broad segment in *Doirania*. They are certainly derived from the same evolutionary stock. The sole species is recorded as a parasite of eggs of *Sexava coriacea*.

SPECIES OF *DOIRANIA*.

1. *D. leefmansii* WATERSTON, 1928, Ann. Mag. Nat. Hist., vol. 2, p. 386.

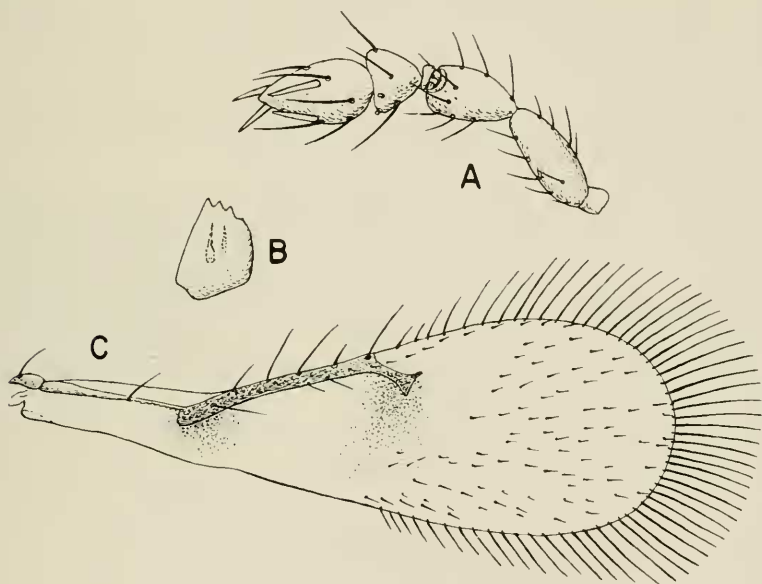


FIGURE 8. *Doirania leefmansii* Waterston. A. Antenna of female; B. mandible; C. forewing of female.

Genus *Trichogrammatella* Girault

Trichogrammatella GIRAULT, 1911, Arch. Naturg., vol. 77, (suppl. 2), p. 126.

Uscanagrammatella GIRAULT, 1911, Arch. Naturg., vol. 77, (suppl. 2), p. 130, (Lapsus for *Trichogrammatella* Girault).

TYPE SPECIES. *Trichogrammatella tristis* Girault.

TYPE LOCALITY. Tunapunta, Trinidad.

DISTRIBUTION. Trinidad, Panama.

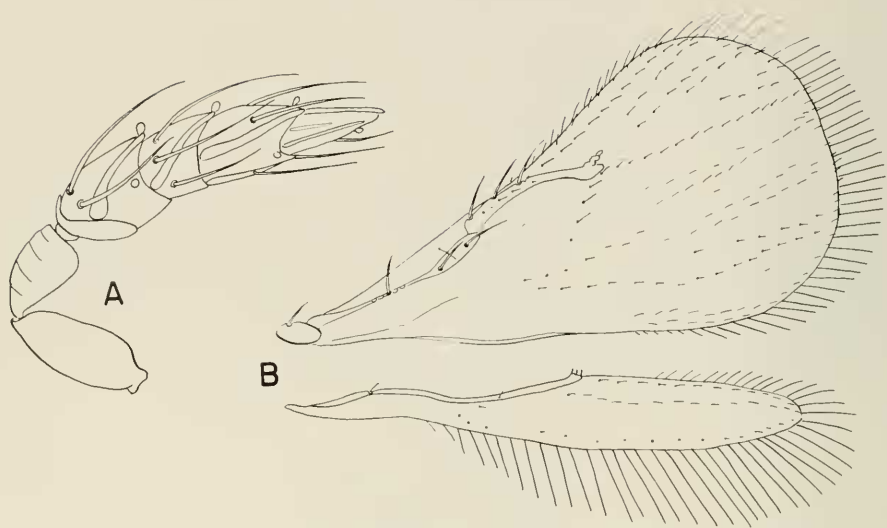


FIGURE 9. *Trichogrammatella tristis* Girault. A. Antenna of female; B. wings of female.

COMMENTS. Girault's original description is quite accurate and can be relied upon. *Trichogrammatella* is best characterized by the long five-segmented club; long stigmal vein curving gently from marginal vein; broad hind wings; long compound spur on apex of middle tibia; and the lack of any marked sexual dimorphism. The scape is short and somewhat expanded, particularly in the males. The ovipositor runs the entire length of venter of abdomen but is not exerted. A small hypogynium is present.

SPECIES OF *TRICHOGRAMMATELLA*.

1. *T. tristis* GIRAULT, 1911, Arch. Naturg., vol. 77, pp. 126-127.

Genus *Haeckeliania* Girault

Haeckeliania GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 97-98.

TYPE SPECIES. *Haeckeliania haeckeli* Girault.

TYPE LOCALITY. Herberton, North Queensland.

DISTRIBUTION. Queensland.

COMMENTS. In *Haeckeliania* the body is typically small and compact. The antenna is distinctive with two annelli, no funicle, and a particularly complex five-segmented club, bearing large, gross, forward-curving spines that may be branched. The maxillary palp is two-segmented. The forewing is moderately broad; marginal vein slightly shorter than premarginal; vein track RS_1 converging with anterior portion of vein track Cu.

The species described as *Haeckeliania brontispae* Ferrière belongs to a new genus.

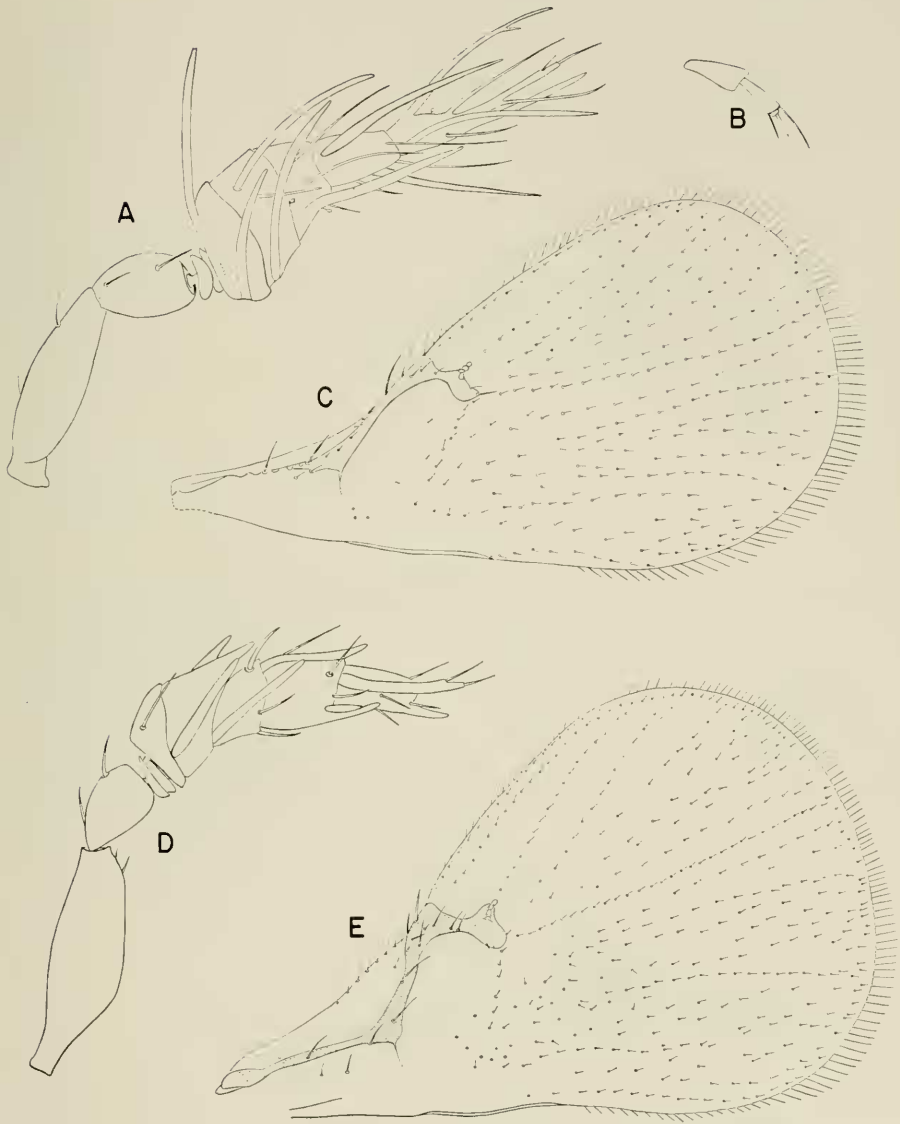


FIGURE 10. *Haeckeliana* species. A. *H. haeckeli* Girault, antenna of female; B. maxillary palpus of female; C. forewing of female. D. *H. magna* Girault, antenna of female; E. forewing of female.

SPECIES OF *HAECKELIANA*.

1. *H. atra* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 382.
2. *H. domestica* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 203.
3. *H. haeckeli* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 98-99.
4. *H. magna* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 383.

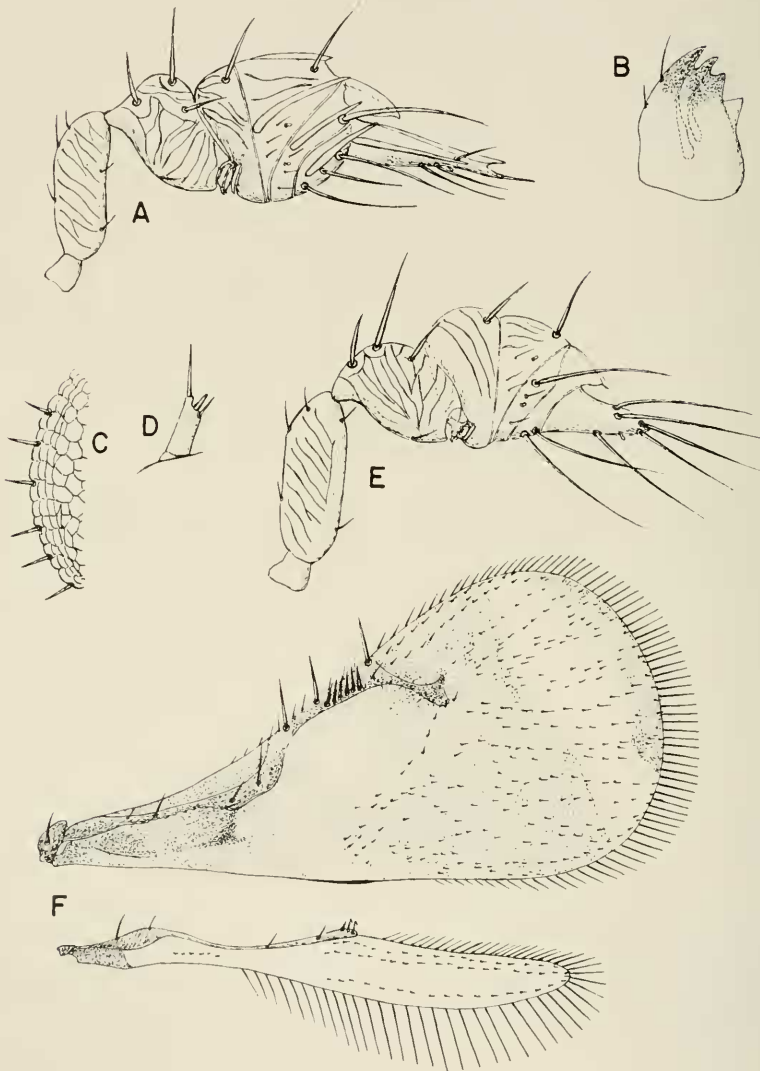


FIGURE 11. *Hispidophila brontispae* (Ferrière). A. Antenna of female; B. mandible; C. surface of compound eye; D. maxillary palpus; E. antenna of male; F. wings.

Hispidophila Viggiani, new genus

TYPE SPECIES. *Haeckeliana brontispae* Ferrière.

TYPE LOCALITY. Java, South Celebes.

DISTRIBUTION. Java, South Celebes, Malaya.

COMMENTS. The morphological characters which distinguish *Hispidophila* are set forth in the key and illustrated in figure 11. While the antennal formula of a scape, pedicel, two annelli, and five-club segments is not unusual among the trichogrammatids, the peculiar form which these assume in *Hispidophila* is unique. The pedicel and four basal club segments are combined into a short, swollen, and compact structure from which the fifth club segment projects as a conical termination. The pedicel fits closely into a wide concavity at the base of the club. The four basal club segments are so broadly and obliquely joined that their separate dimensions are difficult to trace. The forewings are strikingly patterned. The marginal vein with its thick setae and the long stigmal vein are distinctive features. The type species is known to attack the eggs of hispid beetles that feed upon the foliage of coconuts.

SPECIES OF *HISPIDOPHILA*.

1. *H. brontispae* FERRIÈRE, 1931, Bull. Ent. Res., vol. 22, p. 293.

Genus *Abbelloides* Bréthes

Abbelloides BRÉTHES, 1928, Inst. Biol. Def. Agric., Bol. 6, pp. 20-21.

TYPE SPECIES. *Abbelloides marquesi* Bréthes.

TYPE LOCALITY. Not designated, probably Brazil.

DISTRIBUTION. Known only from type series.

COMMENTS. This genus is not well described, and we have not seen any specimens. The club is illustrated and closely resembles that of female *Lath-*

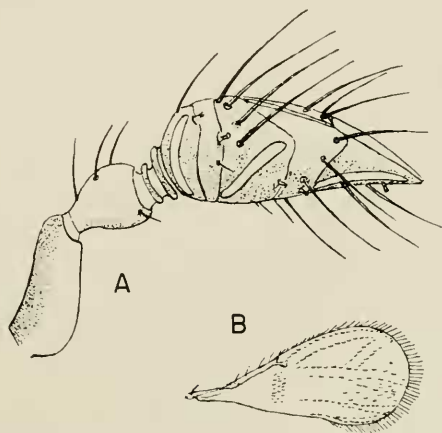


FIGURE 12. *Abbelloides marquesi* Bréthes. A. Antenna; B. forewing (redrawn).

romeroidea. The wings of *Abbelloides* are not so clearly illustrated but they do not appear to have the characteristic convergence of vein tracks that are so immediately conspicuous in *Lathromeroidea*.

We can not make a proper analysis of *Abbelloides* from the original description, and therefore retain it as a genus only on a provisional basis.

SPECIES OF *ABELLOIDES*.

1. *A. marquesi* BRÉTHES, 1928, Inst. Biol. Def. Agric., Bol. 6, pp. 21–22.

Genus *Lathromeris* Foerster

Lathromeris FOERSTER, 1856, Hymenopterologische Studien, vol. 2, p. 87.

Lathromerella GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 93.

Garouella RISBEC, 1956, Bull. Inst. Fr. Afr. Noire, ser. A, vol. 18, p. 818. (New synonymy.)

TYPE SPECIES. *Lathromeris scutellaris* Foerster.

TYPE LOCALITY. Germany.

DISTRIBUTION. Europe, Africa, Australia, North America, South America.

COMMENTS. Steffan (1954) with guidance from Nowicki clarified the status of *Lathromeris* and synonymized *Lathromerella*. We accept this interpretation, although *Lathromerella* may deserve subgeneric status because of the lobed extensions of the hypogynium.

The genus is characterized by a five-segmented club, the basal segment of which may resemble a funicle segment. The club often terminates in a rod-like spicule. There are two annelli; the first is large and distinct, the second is scale-like and appressed to the first club segment. The marginal vein is long. There is no distinct RS_1 vein track present. In a number of species the ovipositor is enclosed in a hypogynium with pale, lobed extensions.

SPECIES OF *LATHROMERIS*.

1. *L. argentina* DESANTIS, 1957, Notas Mus. La Plata, vol. 19, pp. 40–43.
2. *L. atripes* (GIRAULT), 1929, New Pests from Australia VI. Privately published, p. 3, (*Lathromerella*).
3. *L. baetica* (NOWICKI), 1936, Zeit. angew. Ent. Berlin, vol. 23, pp. 131–134, (*Lathromerella*).
4. *L. balcanica* (NOWICKI), 1940, Zeit. angew. Ent. Berlin, vol. 26, pp. 653–654, (*Lathromerella*).
5. *L. chinderaensis* (GIRAULT), 1915, Mem. Queensland Mus., vol. 3, pp. 150–151, (*Lathromerella*).
6. *L. danica* (KRYGER), 1918, Ent. Medd., vol. 12, pp. 295, 298–299, (*Ophioneurus*).
7. *L. fasciata* (GIRAULT), 1912, Mem. Queensland Mus., vol. 1, p. 94, (*Lathromerella*).
8. *L. germanica* (GIRAULT), 1914, Mitt. Mus. Zool. Berlin, vol. 7, p. 149, (*Lathromerella*).
9. *L. lessingi* (GIRAULT), 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 383, (*Lathromerella*).
10. *L. longiciliata* (GIRAULT), 1915, Mem. Queensland Mus., vol. 3, p. 151, (*Lathromerella*).
11. *L. luci* (GIRAULT), 1920, Insec. Inscit. Menstr., vol. 8, p. 202, (*Lathromerella*).
12. *L. occidentalis* (GIRAULT), 1915, Mem. Queensland Mus., vol. 3, p. 150, (*Lathromerella*).
13. *L. ovicida* (RISBEC), 1956, Boll. Inst. Fr. Afr. Noire, ser. A., vol. 18, p. 118, (*Garouella*).
14. *L. oviducta* (GIRAULT), 1929, New Pests from Australia VI. Privately published, pp. 1–3, (*Lathromerella*).

15. *L. polonica* (NOWICKI), 1927, Polsk. Pismo Ent., vol. 6, p. 112, (*Lathromerella*).
= *L. polonica hungarica* (NOWICKI), 1940, Zeit. angew. Ent., vol. 26, p. 654, (*Lathromerella*).
16. *L. scutellaris* FOERSTER, 1856, Hym. Stud., vol. 2, pp. 87, 89.
= *L. austriaca* (SOIKA), 1934, Natuurh. Maandbl., vol. 23, p. 50, (*Lathromerella*).
= *L. italica* (NOWICKI), 1927, Polsk. Pismo Ent., vol. 6, pp. 102, 112, (*Lathromerella*).
= *L. italica carpathica* (NOWICKI), 1936, Zeit. angew. Ent. Berlin, vol. 23, pp. 128-131, (*Lathromerella*).
17. *L. unifasciata* (GIRAULT), 1915, Mem. Queensland Mus., vol. 3, p. 151, (*Lathromerella*).

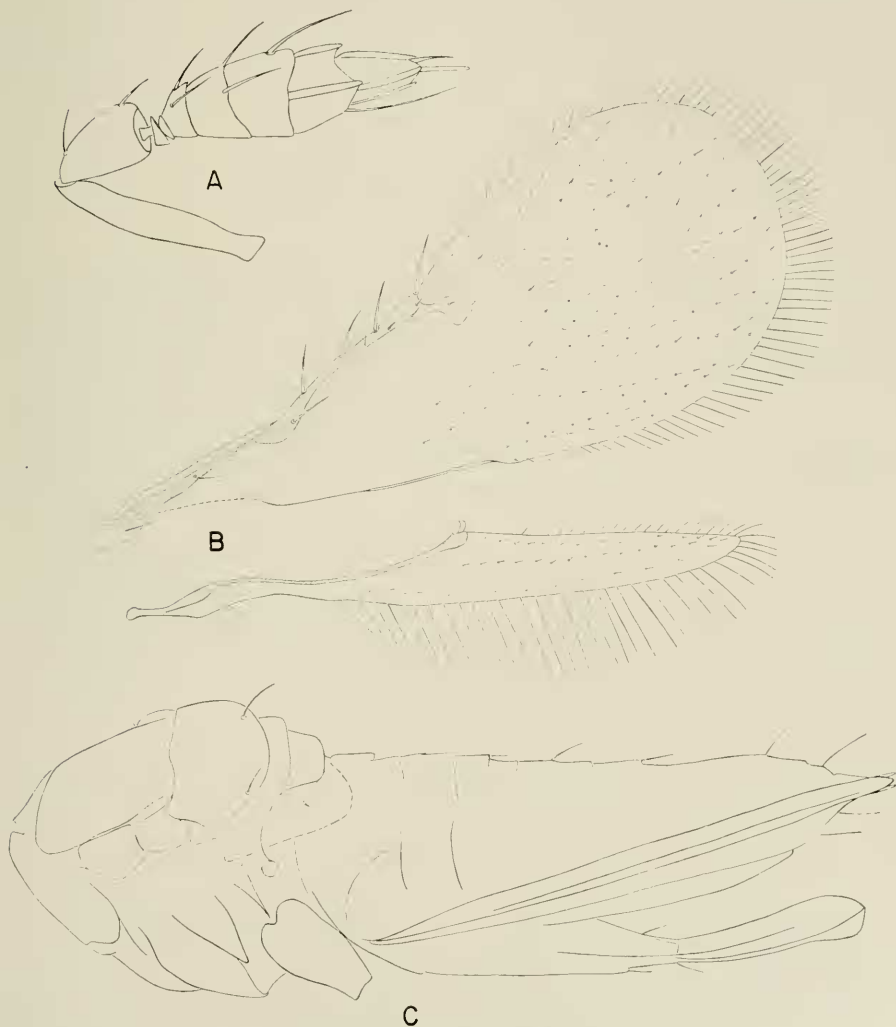


FIGURE 13. *Lathromeris* species. A. *Lathromeris unifasciata* (Girault), antenna. B. *L. fasciata* (Girault), wings; C. body sketch to show lobed hypopygium.

Genus *Neolathromera* Ishii

Neolathromera ISHII, 1934, *Lansania*, vol. 6, p. 125.

TYPE SPECIES. *Neolathromera kishidai* Ishii.

TYPE LOCALITY. Inagi, near Tokyo, Japan.

DISTRIBUTION. Known only from type series.

COMMENTS. The type species was described from a series of seven females and three males bred from the eggs of the Cicada, *Graptopsaltria colorata* Motschulsky. The five-segmented club, the structural venation, and the arrangement of discal setae on the forewing strongly suggest a relationship with *Lathromeroidea* Girault from which it is differentiated by its well developed hypogynium and the presence of a single annellus. Our judgment is based upon the original description for we have not seen this genus.

SPECIES OF *NEOLATHROMERA*.

1. *N. kishidai* ISHII, 1934, *Lansania*, vol. 6, pp. 125-128.

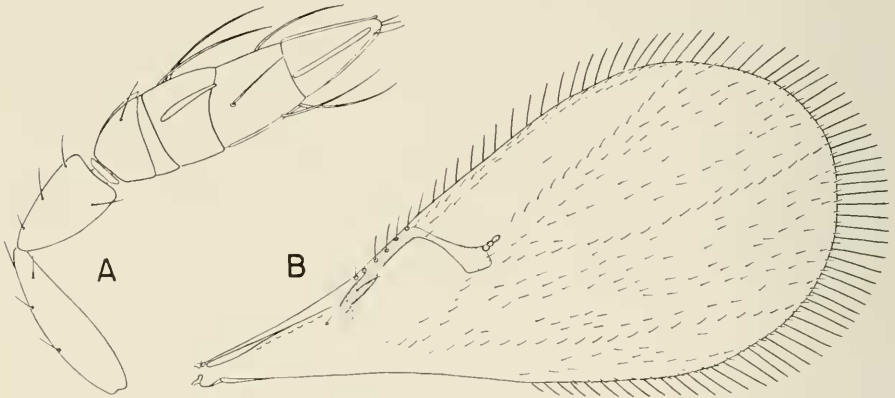


FIGURE 14. *Neolathromera kishidai* Ishii. A. Antenna; B. forewing (redrawn).

Genus *Lathromeroidea* Girault

Lathromeroidea GIRAULT, 1912, *Mem. Queensland Mus.*, vol. 1, p. 94.

Centrobiopsis GIRAULT, 1918, *North American Hymenoptera Trichogrammatidae*. Privately published, pp. 4, 7. (New synonymy.)

TYPE SPECIES. *Lathromeroidea nigra* Girault.

TYPE LOCALITY. Herberton, North Queensland.

DISTRIBUTION. Queensland, Brazil, Poland, eastern United States.

COMMENTS. In *Lathromeroidea* there is an unusual and conspicuous convergence of the bases of vein tracks RS_1 , M, Cu, and A. The forewing is long, only moderately wide, and rounded apically. The antennal club is five-segmented, with forward curving spines and with both pedunculate and elongate sensoria. There are two annelli and no funicle. The forefemur has a long apical spur.

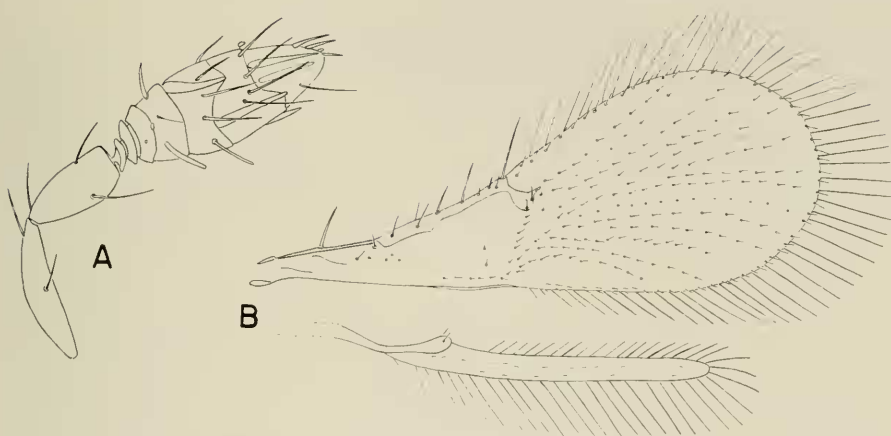


FIGURE 15. *Lathromeroidea nigrella* Girault. A. Antenna of female; B. wings.

The middle tibia has numerous spines on its outer surface and a straight and prominent apical spur. The genus is probably allied with *Neolathromera* Ishii, but that genus has a much greater development of the hypogynium and reportedly has only one annellus. Our concept of *Lathromeroidea* is limited to the female sex for the male specimen alleged to be *Lathromeroidea* in the Girault collection is doubtfully associated with this genus.

A careful examination of the material at the United States National Museum indicates that *Centrobiopsis odonatae* (Ashmead) should be placed in *Lathromeroidea*.

SPECIES OF *LATHROMEROIDEA*.

1. *L. domestica* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 201.
2. *L. nigra* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 94-96.
3. *L. nigrella* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 96.
4. *L. odonatae* (ASHMEAD), 1900, Ent. News, vol. 11, pp. 616-617, (*Centrobia*). (New synonymy.)
5. *L. silvarum* NOWICKI, 1936, Zeit. angew. Ent. Berlin, vol. 23, p. 137.

Genus *Pteryogramma* Perkins

Pteryogramma PERKINS, 1906, Hawaiian Sugar Planters' Assoc. Ent. Bull. 1, p. 265.

TYPE SPECIES. *Pteryogramma acuminata* Perkins.

TYPE LOCALITY. Queensland.

DISTRIBUTION. Queensland.

COMMENTS. Three Australian genera, namely *Pteryogramma*, *Paruscanoidea*, and *Thoreauia*, show obvious affinities in the venation of the forewings. All appear to be part of the endemic fauna on *Eucalyptus*. They appear to be distantly related to *Pseudobrachysticha* of the Philippines, and to have evolved from the same stock that gave rise to *Chaetostricha* (*Centrobia* of authors).

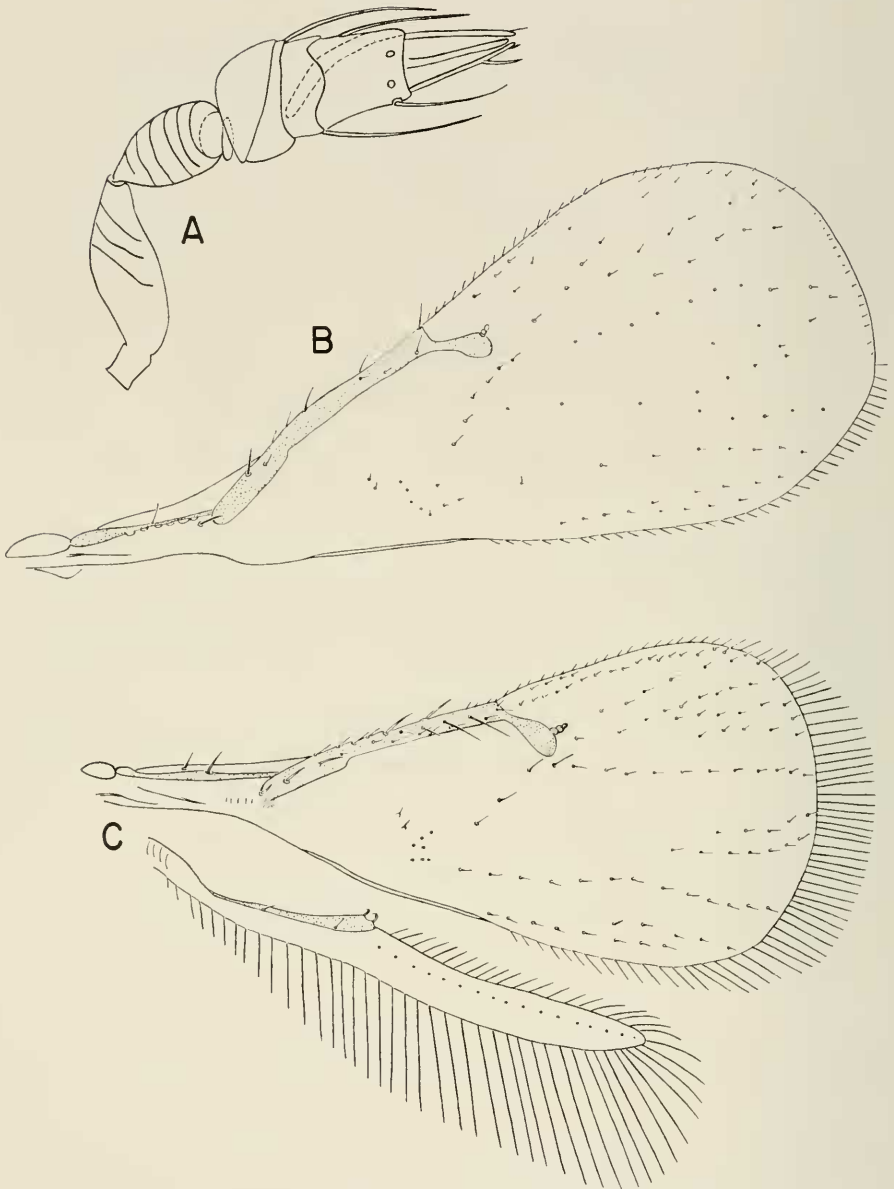


FIGURE 16. *Pteryogramma* species. A. *P. acuminata* Perkins, antenna of female; B. *P. hallami* Girault, forewing of female. C. *P. acuminata* Perkins, wings of female.

Pteryogramma was described as having a three-segmented club, but actually the club is five-segmented. Perkins based his description on badly preserved

specimens which were admittedly subject to much distortion. Two divisions of the club are very pronounced, and this superficially gives the club a three-segmented appearance, but careful examination shows that there are two other divisions present.

There are about five valid species in the genus. *P. tingoora* Girault belongs in *Chaetostricha* (*Centrobia* of authors). *P. cercopicida* Risbec is probably in *Lathromeromyia*. *P. semifuscipenne* Girault can only be doubtfully included in *Pterygogramma*.

SPECIES OF *PTERYGOGRAMMA*.

1. *P. acuminata* PERKINS, 1906, Hawaiian Sugar Planters' Assn., Ent. Bull. 1, p. 265.
2. *P. dubium* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 99-101.
3. *P. hallami* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 202.
= *P. chinchillae* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 385.
4. *P. postmarginale* GIRAULT, 1929, New Pests from Australia VI. Privately published, p. 3.
5. *P. semifuscipenne* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 102. (Doubtfully included.)

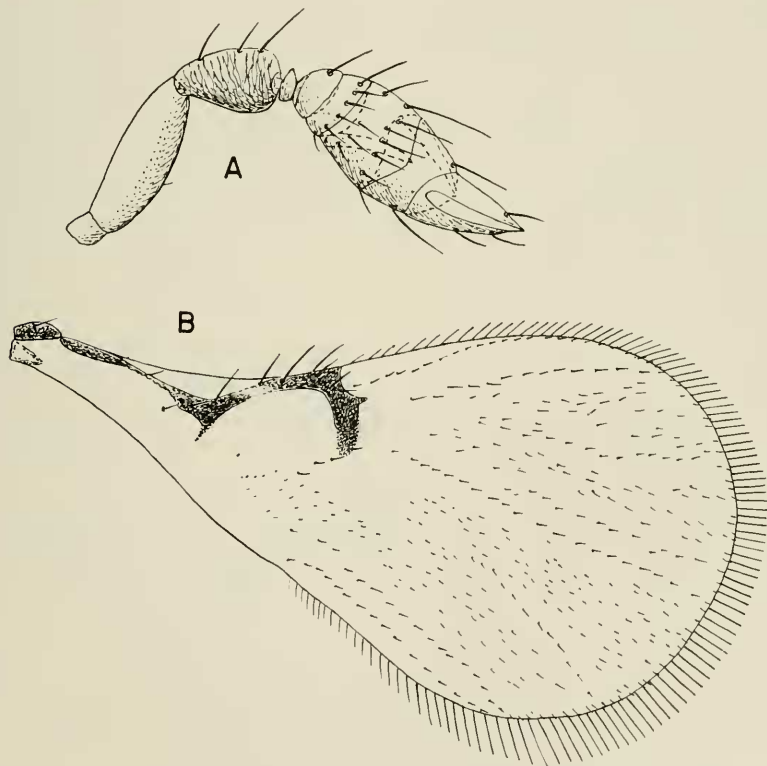


FIGURE 17. *Ophioneurus signatus* Ratzeburg. A. Antenna of female; B. forewing of female.

Genus *Ophioneurus* Ratzeburg

Ophioneurus RATZEBURG, 1852, Ichneumon der Forstinsekten, vol. 3, p. 196.

Mooa GIRAULT, 1930, New Pests from Australia VII. Privately published, p. 2.

TYPE SPECIES. *Ophioneurus signatus* Ratzeburg.

TYPE LOCALITY. Germany.

DISTRIBUTION. Europe, Queensland.

COMMENTS. The greatly widened and oblate forewing with its very short marginal and broad stigmal vein are characteristic of *Ophioneurus*. The wing disc has the major vein tracks distinctly marked by setae. The antennal club is five-segmented; there is no funicle. Evidence which suggests a relationship to *Poropoea* is found in similar host relationships, male genitalia, curved pattern of venation, and trichiation on stigmal vein. The two genera are readily separated by the characters outlined in the key.

SPECIES OF *OPHIONEURUS*.

1. *O. nigrivena* (GIRAULT), 1930, New Pests from Australia VII. Privately published, p. 2, (*Mooa*).
2. *O. signatus* RATZEBURG, 1852, Ichneumon der Forstinsekten, vol. 3, p. 197.
3. *O. spinosus* KRYGER, 1950, Ent. Medd., vol. 26, p. 110.
4. *O. xanthurus* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 661.

Genus *Lathrogramma* DeSantis

Lathrogramma DESANTIS, 1952, Rev. Soc. Ent. Argentina, vol. 15, p. 272.

TYPE SPECIES. *Lathrogramma deltae* DeSantis.

TYPE LOCALITY. Delta de Parana, Buenos Aires.

DISTRIBUTION. Argentina.

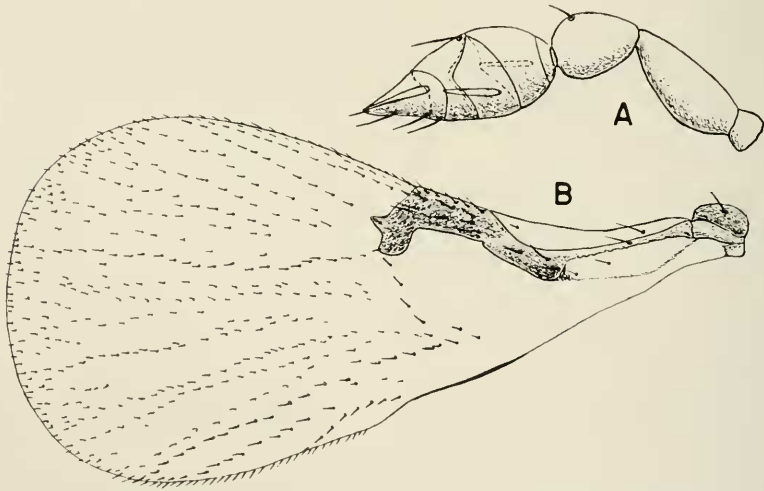


FIGURE 18. *Lathrogramma deltae* DeSantis. A. Antenna of female; B. forewing of female.

COMMENTS. This genus is closely related to *Ophioneurus*, but the marginal and stigmal veins are somewhat broader, there is one segment to the maxillary palp, and the marginal cilia are much shorter. We have examined a male and three females from the type series, and are convinced that *Lathrogramma* should be separated from *Ophioneurus* on the basis of marked differences in the male genitalia.

SPECIES OF *LATHROGRAMMA*.

1. *L. deltae* DESANTIS, 1952, Rev. Soc. Ent. Argentina, vol. 15, pp. 275-276.

Genus *Pseudobrachysticha* Girault

Pseudobrachysticha GIRAULT, 1915, Can. Ent., vol. 47, p. 233.

TYPE SPECIES. *Pseudobrachysticha semiaurea* Girault.

TYPE LOCALITY. Los Banos, Philippine Islands.

DISTRIBUTION. Known only from type series.

COMMENTS. The venation extends distad for about 75 percent of the total length of the wing blade. The marginal and premarginal veins are long, straight, and have the same longitudinal axis. These veins are separated from the anterior border of the wing by a very long, narrow extension of the costal cell. The portion of the marginal vein which does coincide with the anterior margin of the wing is very short and is extended by a postmarginal projection. The setae on the wing disc are reduced to two short lines. The funicle is of a single segment in both sexes, but the female club is two-segmented and the male club is solid. Body is short and compact. The ovipositor is small and located in distal one-half of abdomen. There is nothing else quite like this genus in the family, al-

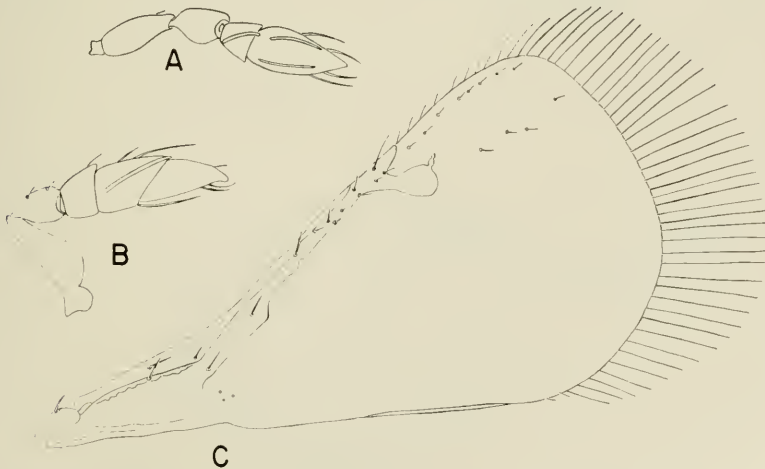


FIGURE 19. *Pseudobrachysticha semiaurea* Girault. A. Antenna of male; B. antenna of female; C. forewing of female.

though it does show a relationship to the *Pteryogramma* complex of genera on the basis of the long, straight venation.

SPECIES OF *PSEUDOBRACHYSTICHA*.

1. *P. semiaurea* GIRAULT, 1915, Can. Ent., vol. 47, p. 233.

Genus *Asynacta* Foerster

Asynacta FOERSTER, 1856, Hymenopterologische Studien, vol. 2, pp. 87, 89.

TYPE SPECIES. *Eulophus exiguus* Nees, 1834.

TYPE LOCALITY. Germany.

DISTRIBUTION. Europe.

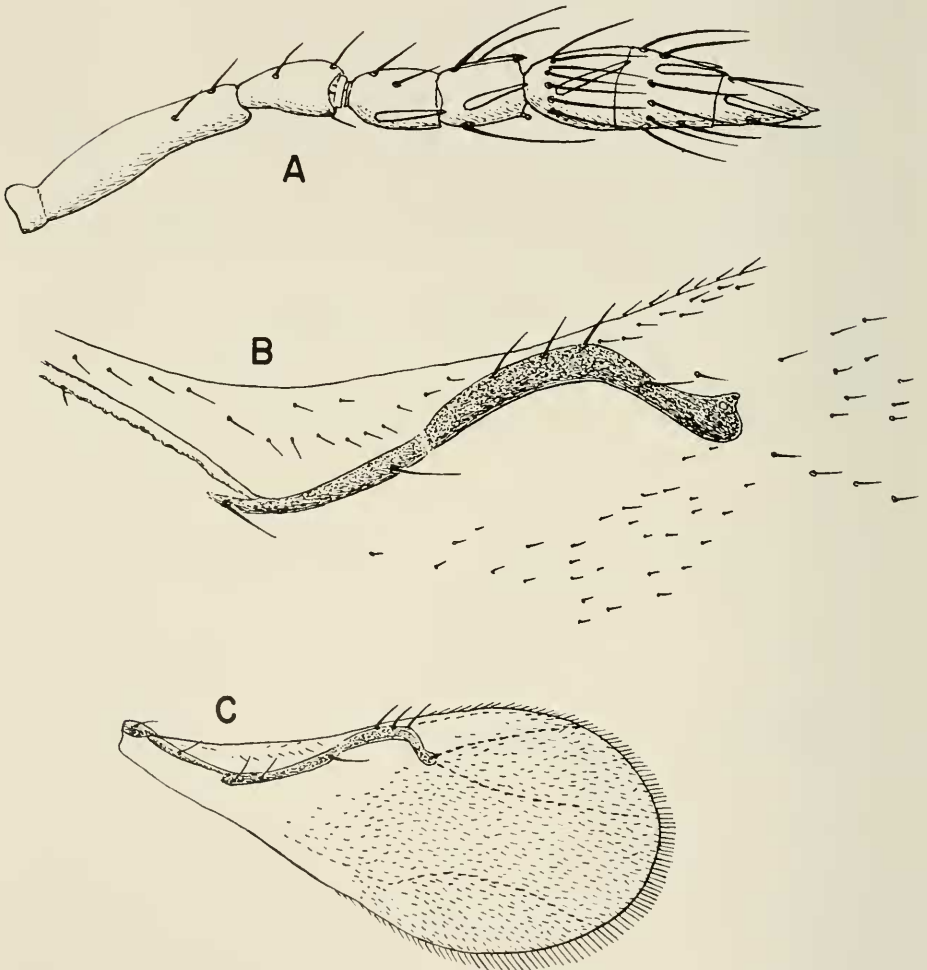


FIGURE 20. *Asynacta exigua* (Nees). A. Antenna of female; B. forewing venation; C. forewing of female.

COMMENTS. *Asynacta* is apparently related to *Poropoea* Foerster and *Mirufens* Girault. They are set apart as a distinct group for they share the same antennal formula and the wing venation of the forewing does not reach the anterior edge of the wing blade. *Asynacta* differs from the two related genera by lacking vein tracks RS_1 and M. There is sexual dimorphism in the antennae, and *Asynacta* seems to be related particularly to *Mirufens* (subgenus *Trachocera*), but easily separated by the characters indicated in the key.

SPECIES OF *ASYNACTA*.

1. *A. exigua* (NEES), 1834, Hym. Ichn. Aff. Mon., vol. 2, p. 183, (*Eulophus*).

Genus *Mirufens* Girault

Mirufens GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 147.

Trachocera BLOOD AND KRYGER, 1928, Ent. Medd., vol. 16, pp. 208-209. (New synonymy.)

Subgenus *Trachocera* Blood and Kryger, 1928, new status.

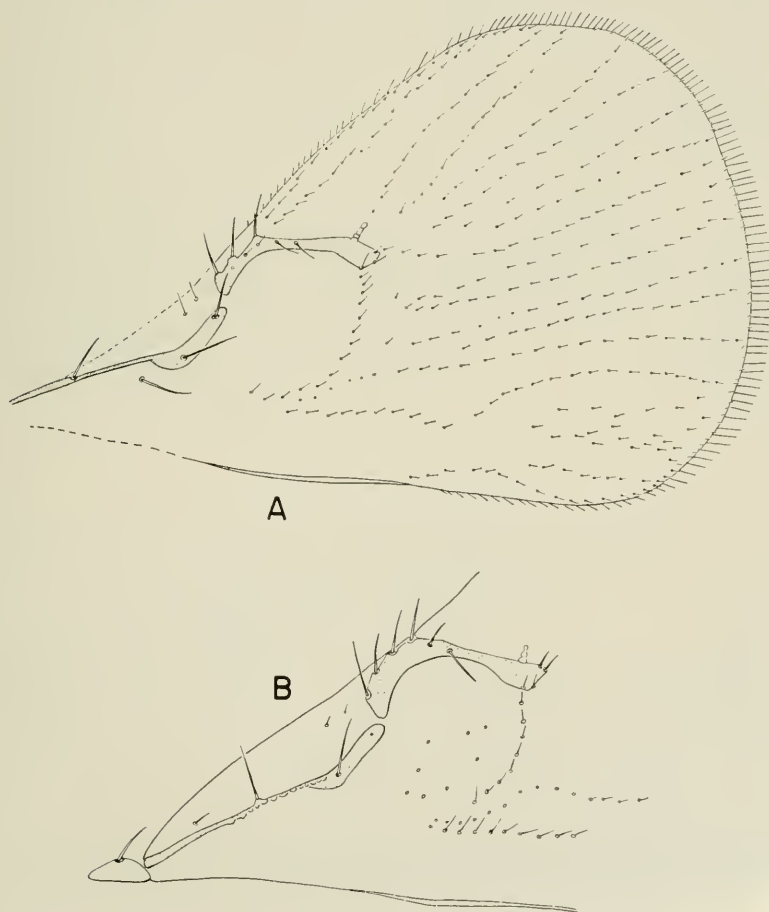


FIGURE 21. *Mirufens dentipes* Girault. A. Wing of female; B. forewing venation of male.

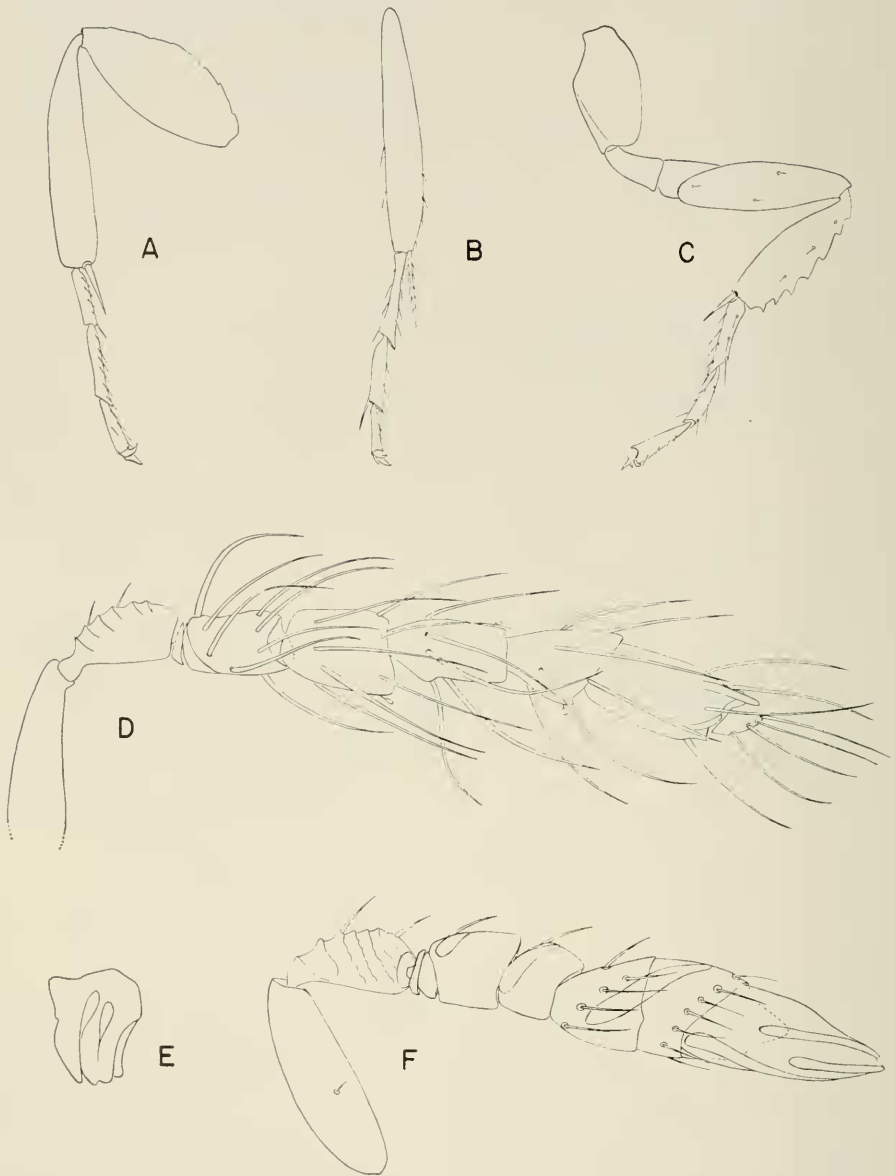


FIGURE 22. *Mirufens dentipes* Girault. A. Hind tibial spur; B. middle compound spur; C. foreleg with tibial teeth; D. antenna of male; E. mandible; F. antenna of female.

TYPE SPECIES. *Mirufens dentipes* Girault.

TYPE LOCALITY. Gordonvale (Cairns), Queensland.

DISTRIBUTION. Queensland, Ceylon, Syria, Europe.

COMMENTS. *Mirufens* is somewhat anomalous for the genus has elements of both *Asynacta* and *Ufens* but is neither. We divide *Mirufens* into two subgenera. In the subgenus *Mirufens* (*Mirufens*) the marginal vein of the female fails to attain the anterior border of the forewing, and there is a distinct break between the premarginal and marginal vein. The stigmal vein is much longer than either the marginal or premarginal veins. The subgenus *Mirufens* is known from Queensland and Ceylon. In the subgenus *Mirufens* (*Trachocera*) all the known specimens are from Europe and Syria. Morphologically they are separated from the subgenus *Mirufens* by the venation which touches the border of the forewing, and by the more elongate club and funicle segments. In all species the foretibia has thorn-like projections. The female antenna has a distinctly ridged pedicel, two annelli, two distinct quadrate and articulated funicles, and a long pointed and three-segmented club. The male antenna is quite different with long forward-curving bristles arranged in whorls on the flagellar segments.

SPECIES OF *MIRUFENS*.

1. *M. dentipes* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 148.
2. *M. longicauda* (BLOOD), 1923, Ann. Rept. Bristol Nat. Hist. Soc., vol. 5, p. 257, (*Asynacta*). (New combination.)
= *M. longicauda* (BLOOD AND KRYGER), 1928, Ent. Medd., vol. 16, p. 209, (*Trachocera*). (New synonymy.)
3. *M. gundlachi* (NOWICKI), 1935, Zeit. angew. Ent., vol. 21, p. 568. (New combination.)

Genus *Poropoea* Foerster

Poropoea FOERSTER, 1851, Verh. naturh. Ver. preuss. Rheinl., vol. 1, p. 28.

Poropoeoides NOWICKI, 1936, Zeit. angew. Ent., vol. 23, pp. 125-126.

TYPE SPECIES. *Poropoea stollwerckii* Foerster.

TYPE LOCALITY. Germany.

DISTRIBUTION. Europe, eastern United States, Japan, China, India.

COMMENTS. *Poropoea* is immediately identified by the strongly sigmoid venation which fails to attain the anterior margin of the forewing. The female antenna has two large, cylindrical, and articulated funicle segments with a tapering, three-segmented club. The males have the same segmentation in the club but the segments are less compact. Although there are interspecific differences which may eventually be used to divide *Poropoea* into subgenera, we presently are without sufficient material to justify such a classification.

SPECIES OF *POROPOEA*.

1. *P. attelaborum* GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 68-69.
2. *P. bohémica* (NOWICKI), 1936, Zeit. angew. Ent. Berlin, vol. 23, p. 126, (*Poropoeiodes*). (New combination.)
3. *P. defilippii* SILVESTRI, 1916, Boll. Lab. Zool. Gen. Agr. Portici, vol. 11, pp. 131-134.
4. *P. minkiewiczzi* NOWICKI, 1936, Zeit. angew. Ent. Berlin, vol. 23, p. 124.
5. *P. morimotoi* HIROSE, 1963, Acta Hymen., vol. 2, pp. 30-33.
6. *P. reticulata* HIROSE, 1963, Acta Hymen., vol. 2, pp. 33-35.
7. *P. stollwercki* FOERSTER, 1851, Verh. Nat. Preuss. Rheinl., vol. 8, p. 28.
 = *P. simplex* (RATZEBURG), 1852, Ichn. Forstins., vol. 3, pp. 197, 248, (*Ophioneurus*).
 = *P. grandis* (THOMSON), 1879, Hym. Scand., vol. 5, p. 299.

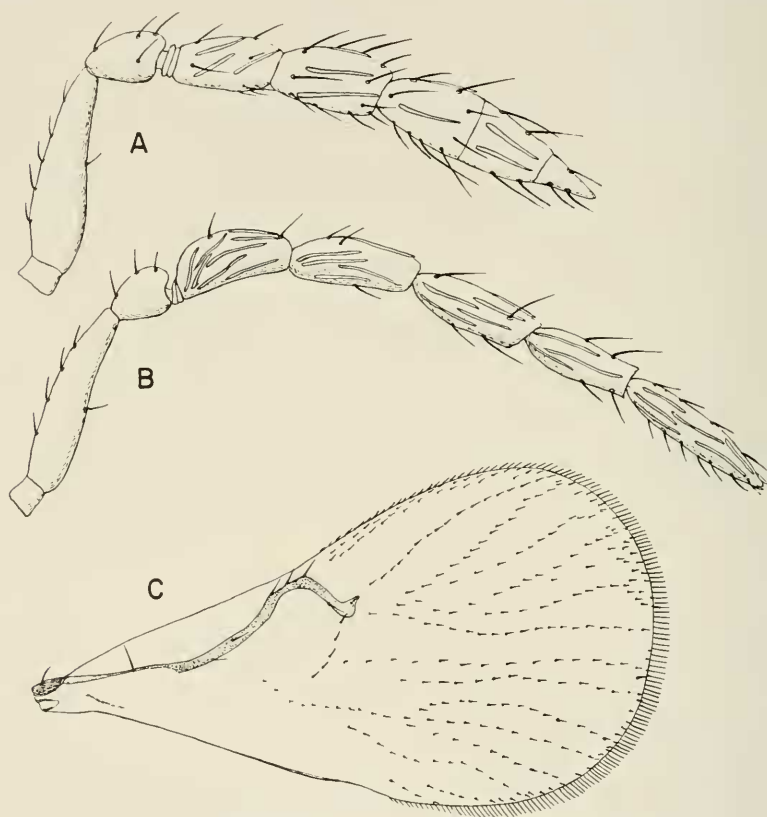


FIGURE 23. *Poropoea stollwerckii* Foerster. A. Antenna of female; B. antenna of male; C. forewing.

Genus *Brachygrammatella* Girault

Brachygrammatella GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 147.

Pseudbrachygramma GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 148. (New synonymy.)

Subgenus *Pseudbrachygramma* GIRAULT, 1915, new status.

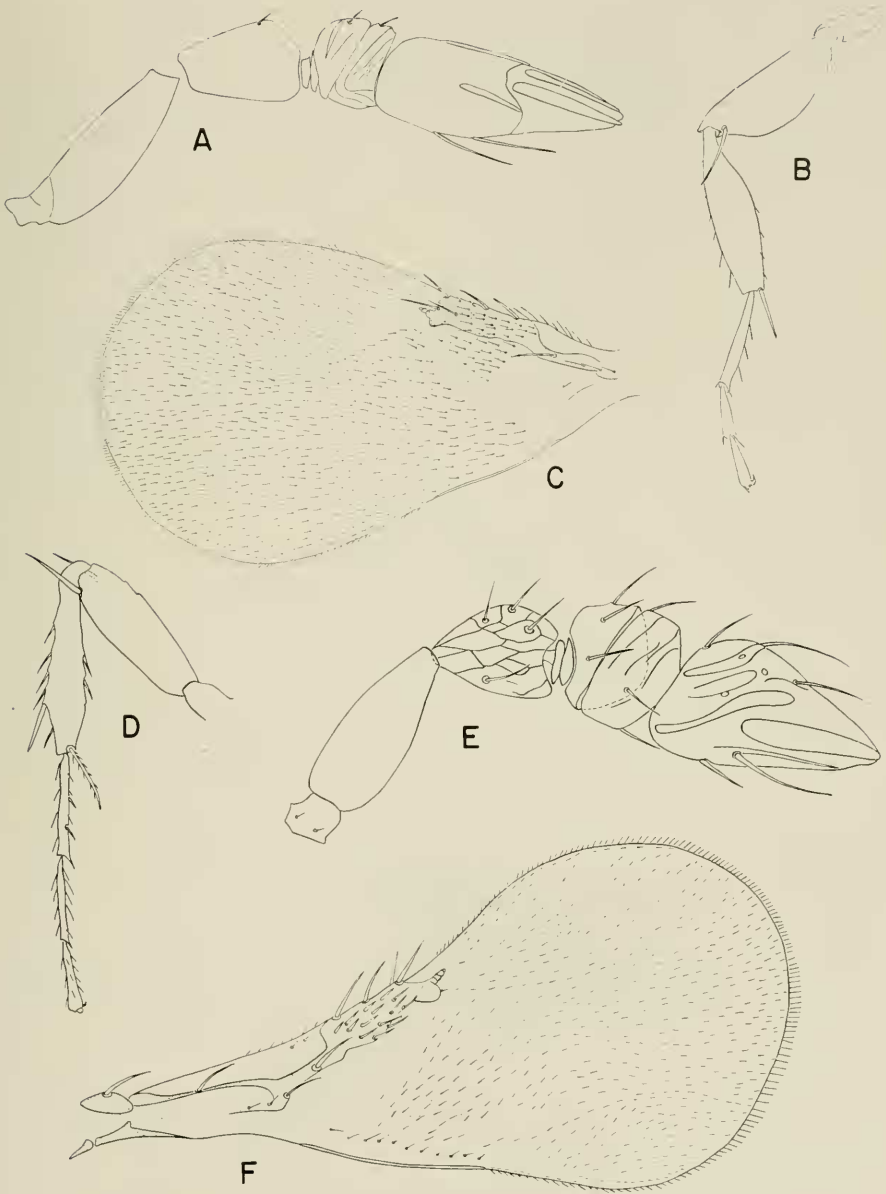


FIGURE 24. *Brachygrammatella* species. A. *Brachygrammatella nebulosa* Girault, antenna of female; B. midfemur, tibia, tarsus; C. forewing. D. *B. (Pseudbrachygramma) perplexa* (Girault), midfemur, tibia, tarsus; E. antenna of female; F. forewing.

TYPE SPECIES. *Brachygrammatella nebulosa* Girault.

TYPE LOCALITY. Gordonvale, Queensland.

DISTRIBUTION. Queensland, South Africa.

COMMENTS. The type species is known from a single specimen, but the morphological characteristics of this single individual are sufficiently distinct to justify the retention of the genus as a valid entity. While there are small differences between *Brachygrammatella* and *Pseudbrachygramma* they are not of a fundamental nature and therefore *Pseudbrachygramma* is combined as a subgenus. These differences are set forth in the key.

The following features characterize *Brachygrammatella*: Marginal vein straight, broad throughout its length, heavily setaceous; stigmal vein broad, short; costal cell well developed, rather truncate distally at base of marginal vein; setae dense on forewing blade, thicker and more spine-like beneath venation; antenna inserted in middle of face; female scape short, pedicel short but broad; two annelli; two subequal obliquely divided funicle segments; club one or two-segmented, apically pointed.

SPECIES OF *BRACHYGRAMMATELLA*.

1. *B. dubia* (GIRAULT), 1915, Mem. Queensland Mus., vol. 3, p. 148, (*Pseudbrachygramma*). (New combination.)
2. *B. nebulosa* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 147.
3. *B. perplexa* (GIRAULT), 1915, Mem. Queensland Mus., vol. 3, p. 148, (*Pseudbrachygramma*). (New combination.)
4. *B. speciosissima* (GIRAULT), 1912, Mem. Queensland Mus., vol. 1, pp. 105-107, (*Aphelinoida*). (New combination.)

Genus *Pterandrophysalis* Nowicki

Pterandrophysalis NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, pp. 575-579.

TYPE SPECIES. *Pterandrophysalis levantina* Nowicki.

TYPE LOCALITY. Female taken at Usak. Sugar Factory, Phrygia, Turkey; Male taken at Ankara, Galatia, Turkey.

DISTRIBUTION. Turkey, northern Syria.

COMMENTS. Our interpretation of *Pterandrophysalis* is derived solely from the original description, but the genus was well illustrated by Nowicki and so we are reasonably certain that its current placement is correct.

SPECIES OF *PTERANDROPHYSALIS*.

1. *P. levantina* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 579.

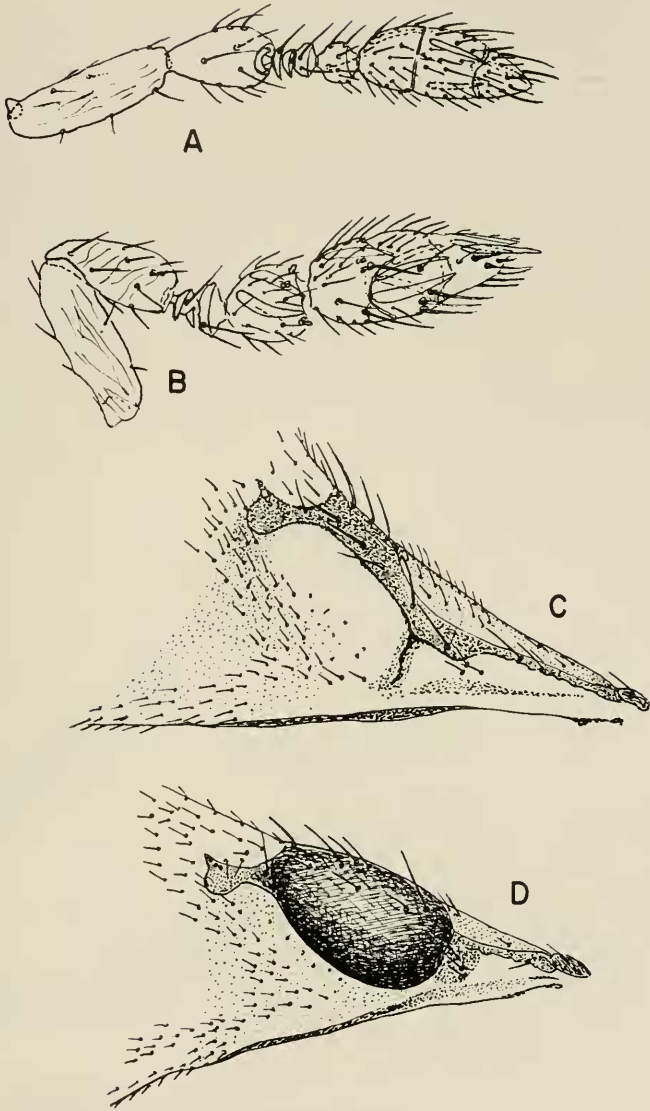


FIGURE 25. *Pterandrophysalis levantina* Nowicki. A. Antenna of female; B. antenna of male; C. forewing venation of female; D. forewing venation of male (redrawn).

Genus *Xiphogramma* Nowicki

Xiphogramma NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 640.

TYPE SPECIES. *Xiphogramma holorhoptra* Nowicki.

TYPE LOCALITY. Warsaw, Poland.

DISTRIBUTION. Poland, South Africa.

COMMENTS. The extraordinary size and sabre-like shape of the valvulae immediately distinguish this genus. Recently a new species of *Xiphogramma* has been found in South Africa. The abundant discal setae and abbreviated venation suggest a relationship to the *Aphelinoidea* complex of genera. A species from California exhibits all the characteristics of *Xiphogramma* except the long ovipositor and sabre-shaped valvulae. This species probably represents a new subgenus, but until more material is available the genus *Xiphogramma* is not being divided.

SPECIES OF *XIPHOGRAMMA*.

1. *X. holorhoptra* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 641.



FIGURE 26. *Xiphogramma* (African specimen).

Probrachista Viggiani, new genus

TYPE SPECIES. *Probrachista nepalensis* Viggiani, new species.

TYPE LOCALITY. Taplejung District, Sangu, Nepal.

DISTRIBUTION. Known only from the type locality.

COMMENTS. The genus has general features similar to *Brachista* Walker but the antennal formula is different consisting of scape, pedicel, annellus, two funicle segments and a two-segmented club. *Brachista* has a single funicle and a single club segment. The new genus *Probrachista* is separated from all other genera by the characters emphasized in the key. It is illustrated in figure 27.

Probrachista nepalensis Viggiani, new species.

(Figure 27, A, B, C.)

FEMALE. Black, the antennae and legs a little lighter, wings infusate. Length of body: 0.87 mm. Head in dorsal view wider than long, slightly wider than the thorax, vertex with four strong setae, eyes very hairy; antennae in-

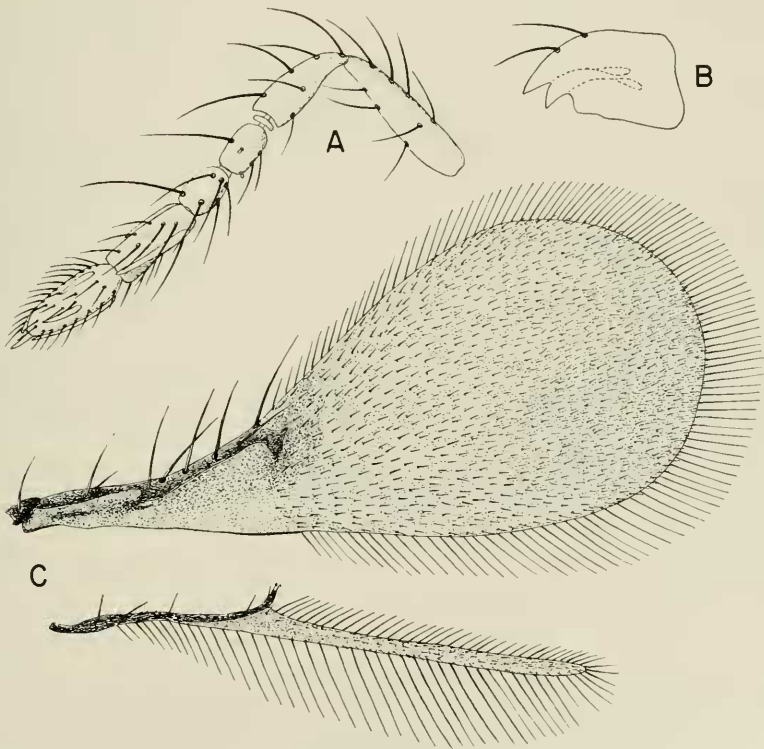


FIGURE 27. *Probrachista nepalensis* Viggiani, new species. A. Antenna of female; B. mandible; C. wings.

sented at about the lower level of the eyes, with scape not reaching the middle ocellus; scape about four times as long as wide, pedicel three-fourths length of scape, funicle a little longer than the pedicel with each segment a little less than twice as long as wide, first club segment cylindrical, as long as the pedicel, the second club segment somewhat ovoid, about five-sixths the length of the first club segment; scape, pedicel and funicle with strong setae, club segments with some linear sensoria and setae not as stout as those on other antennal segments; mandibles with two very sharp outer teeth, maxillary palp one-segmented.

Thorax compact, about as long as wide, pronotum very short, complete parapsidal sutures, large mesoscutum with two strong setae and slight, longitudinally reticulate sculpture, scutellum about a half shorter than the mesoscutum, twice wider than long and with two strong setae; metanotum and propodeum short.

Forewing about two and one-half times longer than wide with venation extending distally for a distance equal to the greatest width of the disc; submarginal vein as long as the marginal vein, premarginal vein short and stout, stigmal vein rather broad with normal neck; premarginal and marginal veins with six macrochaetae; no vein tracks on disc, the ciliation uniform from stigmal vein to wing apex; marginal fringe about one-fifth the greatest width of the blade. Hindwing very narrow, with three rows of cilia on the disc; marginal fringe about one-fifth the wing length.

Legs long and hairy with hind coxae twice the length of either fore or middle coxae; tarsal segments with following ratios: foretarsi 3:3:4, middle tarsi 5:5:4, and hind tarsi 5.5:5.5:4.

Abdomen long, about half longer than the thorax; ovipositor originates at the base of abdomen and extends beyond abdominal apex for a distance equal to the length of the thorax; abdominal segments with longitudinal striations.

MALE. Unknown.

Described from three females (holotype and two paratypes). The holotype is labeled "Taplejung Distr., Sangu. c. 6200'. Mixed vegetation by stream in gully. Xi. 1961-I. 1962. Brit. Mus. East Nepal Exp. 1961-62. R. L. Coe Coll. B.M. 1962-177." The paratypes are labeled "Deep river gorge. c. 5200'. Taplejung Distr. between Sangu and Tamrang. X-Xi. 1961. Brit. Mus. East Nepal Exp. 1961-62. R. L. Coe Coll. B.M. 1962-177."

Holotypes and paratypes to be deposited in the collection of the British Museum (Natural History).

Genus *Monorthochaeta* Blood

Monorthochaeta BLOOD, 1923, Ann. Rept. Proc. Bristol Nat. Soc., vol. 5, p. 254.

Monorthochaeta BLOOD AND KRYGER, 1928, Ent. Medd., vol. 16, p. 205.

TYPE SPECIES. *Monorthochaeta nigra* Blood.

TYPE LOCALITY. Kings Weston Downs, near Bristol, England, (Female).

DISTRIBUTION. Europe, Argentina.

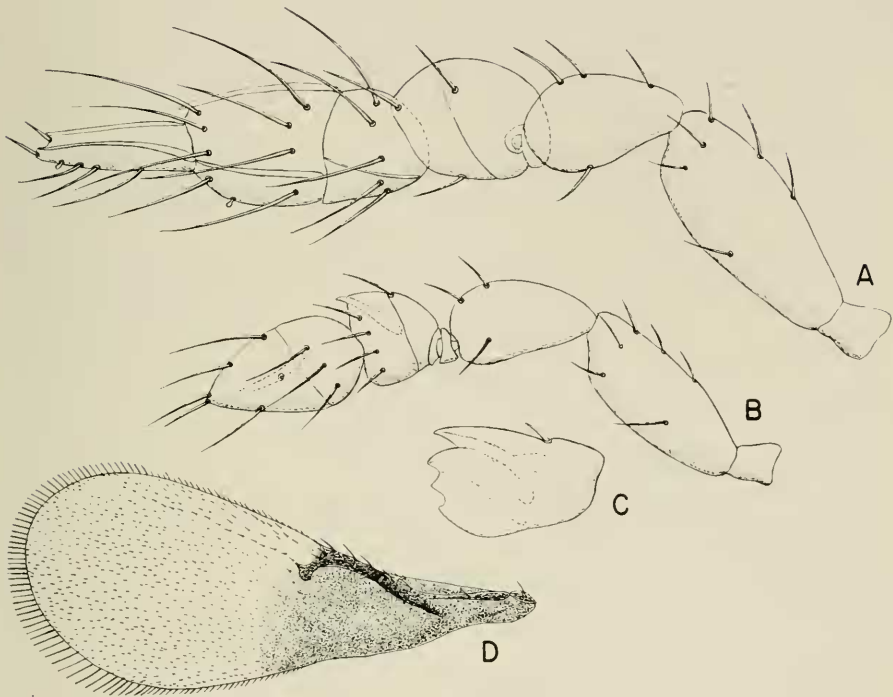


FIGURE 28. *Monorthochaeta nigra* Blood. A. Antenna of female; B. antenna of male; C. mandible; D. forewing.

COMMENTS. The dense setae of the wing disc places *Monorthochaeta* with *Xiphogramma* and allied genera. They are all phylogenetically associated with *Aphelinoidea*. The long radial process at the base of the pre-marginal vein and the peculiar stigmal vein are helpful characters to distinguish *Monorthochaeta*. The male antenna has a short two-segmented club and the type specimen is apterous.

The type species, *M. nigra*, has been reared from eggs of *Cassida* species, (Chrysomelidae, Coleoptera).

SPECIES OF *MONORTHOCHAETA*.

1. *M. galatica* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 631.
= *M. obscuripes* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 631.
2. *M. nigra* BLOOD, 1923, Ann. Rept. Proc. Bristol Nat. Soc., vol. 5, p. 257.
= *M. nigra* BLOOD AND KRYGER, 1928, Ent. Medd., vol. 16, p. 206.
3. *M. platensis* (DESANTIS), 1957, Notas Mus. La Plata, vol. 19, pp. 138-141, (*Ufens*). (New combination.)

Genus *Ceratogramma* DeSantis

Ceratogramma DeSANTIS, 1957, Notas Mus. La Plata, vol. 19, pp. 130-131.

TYPE SPECIES. *Ceratogramma schachovskoyi* DeSantis.

TYPE LOCALITY. Lago Curruhe Grande (Province of Neuguen), Argentina.

DISTRIBUTION. Known only from type locality.

COMMENTS. *Ceratogramma* is closely related to the subgenus *Trachocera* of *Mirufens*, but it can be separated by a number of small but significant differences. On the wings it lacks the long stigmal vein and clearly defined vein tracks of *Trachocera*, but it has a setaceous costal cell and a basal vein track that are lacking in *Trachocera*. The mouthparts show differences in that the mandibles have three teeth in *Ceratogramma* and four teeth in *Trachocera*. The proportions of the two segments of the maxillary palp are different between the genera. The male antennae are somewhat similar, but since *Ceratogramma* is known only from the male no comparison with the characteristic female antenna of *Trachocera* is possible.

SPECIES OF *CERATOGRAMMA*.

1. *C. schachovskoyi* DeSANTIS, 1957, Notas Mus. La Plata, vol. 19, pp. 131-133.

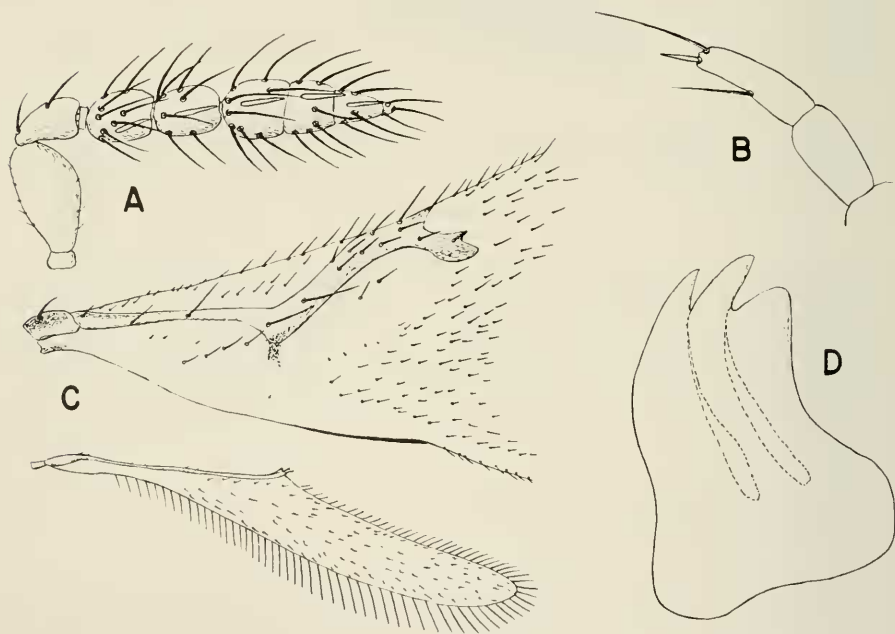


FIGURE 29. *Ceratogramma schachovskoyi* DeSantis. A. Antenna; B. maxillary palp; C. forewing base and hind wing; D. mandible.

Genus *Szelényia* Nowicki

Szelényia Nowicki, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 633.

TYPE SPECIES. *Szelényia tamaricis* Nowicki.

TYPE LOCALITY. Salins d'Hayeres, French Riviera.

DISTRIBUTION. France, Corsica.

COMMENTS. The very broad forewing and the very short marginal vein with its very angular junctions to the stigmal and premarginal veins are important distinguishing characteristics of *Szelényia*. The male antennae do not show marked sexual dimorphism but instead have the same formula as the female, consisting of two annelli, two funicle segments which are wider than long, and a three-segmented club that tapers to a point distally.

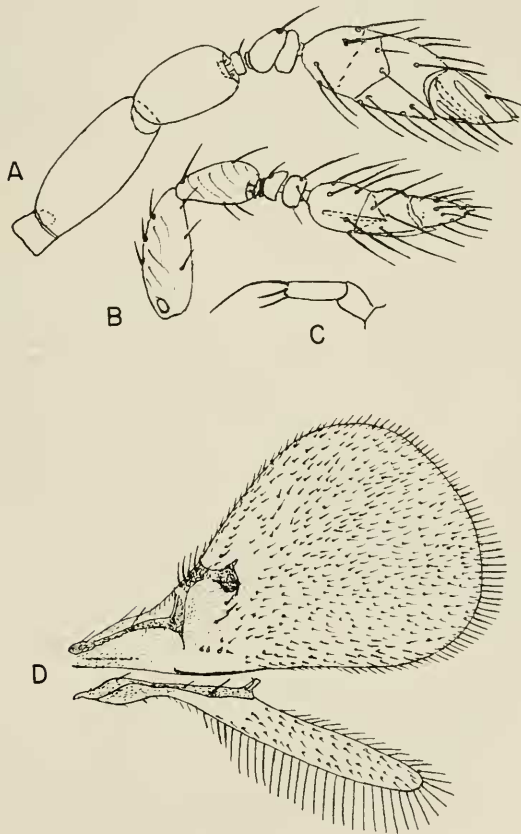


FIGURE 30. *Szelényia tamaricis* Nowicki. A. Antenna of female; B. antenna of male; C. maxillary palp; D. wings.

The antennae suggest a relationship to *Japania*, and the forewings indicate a relationship to *Neobrachista*.

SPECIES OF *SZELÉNYIA*.

1. *S. tamaricis* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, pp. 633-636.

Genus *Tumidifemur* Girault

Tumidifemur GIRAULT, 1911, Arch. Naturg., vol. 77, suppl. 2, pp. 124-125.

TYPE SPECIES. *Tumidifemur pulchrum* Girault.

TYPE LOCALITY. Tunapunta, Trinidad.

DISTRIBUTION. Known only from type locality.

COMMENTS. *Tumidifemur* is somewhat anomalous, but at least superficially appears to be related to the cluster of genera that possess abundant, dense, and short setae on the wing blade. It is especially similar to *Brachygrammatella*. An area on the forewing, conspicuously bare of any discal setae, extends obliquely from the stigmal vein to the proximal part of the retinaculum. The forewings do not have vein tracks. The premarginal vein bears a pair of gross spines. A cluster of very heavy setae are located beneath the marginal vein. The secondary wing is broad. The antenna lacks a funicle, but has a large, strongly tapered club of three unequal segments.

SPECIES OF *TUMIDIFEMUR*.

1. *T. pulchrum* GIRAULT, 1911, Arch. Naturg., vol. 77, pp. 124-125.

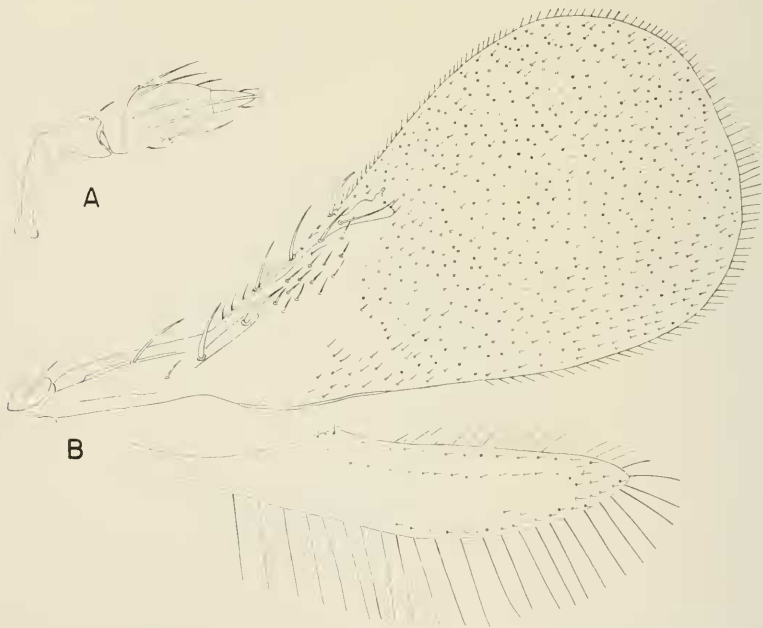


FIGURE 31. *Tumidifemur pulchrum* Girault. A. Antenna of female; B. wings of female.

Genus *Aphelinoidea* Girault

Aphelinoidea GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 2-4.

Lathromeroides GIRAULT, 1913, Ent. News, vol. 24, p. 211. (New synonymy.)

Subgenus *Lathromeroides* GIRAULT, 1913, new status.

Diaclava BLOOD AND KRYGER, 1928, Ent. Medd., vol. 16, pp. 213-214. (New synonymy.)

Subgenus *Diaclava* BLOOD AND KRYGER, 1928, new status.

Krygeriola NOWICKI, 1934, Polsk. Pismo Ent., vol. 12, pp. 3-4.

Thalesanna GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 8, p. 80. (New synonymy.)

Subgenus *Thalesanna* GIRAULT, 1938, new status.

Lengerkeniola NOWICKI, 1946, Zbl. Ges. Geb. Ent., vol. 1, p. 45. (New synonymy.)

Encyrtogramma DESANTIS, 1957, Notas del Museo, La Plata, vol. 19, pp. 33-35. (New synonymy.)

Subgenus *Encyrtogramma* DESANTIS, 1957, new status.

Tanygramma DESANTIS, 1957, Notas del Museo, La Plata, vol. 19, pp. 37-38. (New synonymy.)

TYPE SPECIES. *Aphelinoidea semifuscipennis* Girault.

TYPE LOCALITY. Centralia, Illinois.

DISTRIBUTION. Worldwide.

COMMENTS. The genus *Aphelinoidea* is widespread and common. It represents one of the major evolutionary divisions in the family Trichogrammatidae. The species are characterized by the short venation, the abundant discal setae on

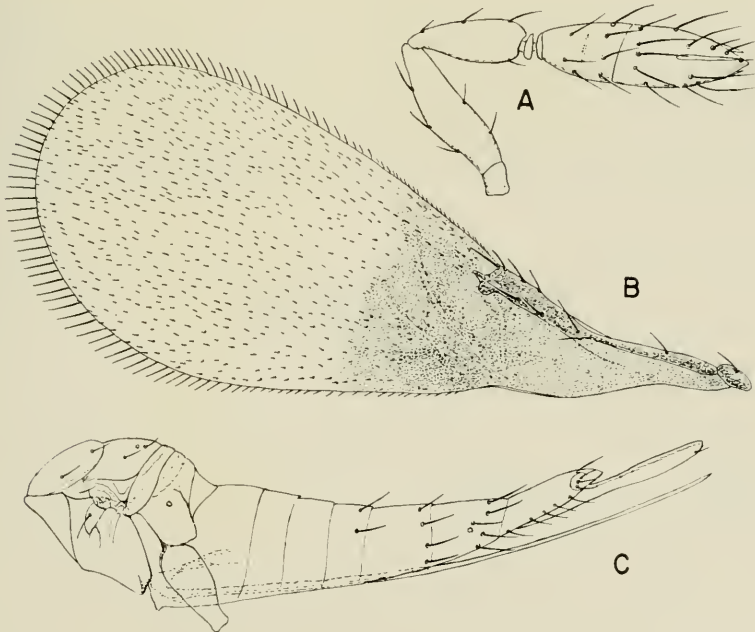


FIGURE 32. *Aphelinoidea* (*Lathromeroides*) *xiphias* (DeSantis). A. Antenna; B. forewing; C. body sketch.

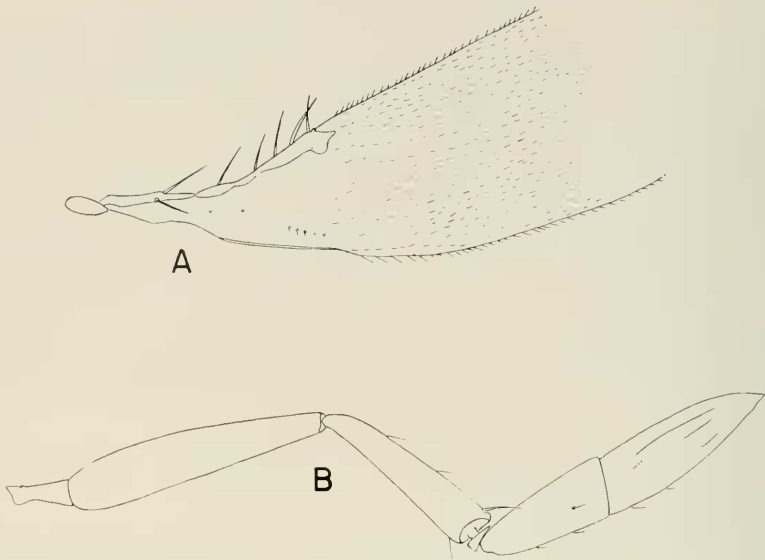


FIGURE 33. *Aphelinoidea (Thalesanna) nigrioculae* (Girault). A. Forewing base; B. antenna.

the forewing, the absence of a funicle, and by the long club which may be either two or three segmented. Although a number of rather distinct variations have been described as genera, we interpret their status as subgenera as indicated above. In this revision, it should be pointed out that species described as *Lathromeroides*, *Krygeriola*, *Lengerkeniola*, or *Tanygramma* all possess very elongate abdomens and associated structures of the ovipositor. We think that

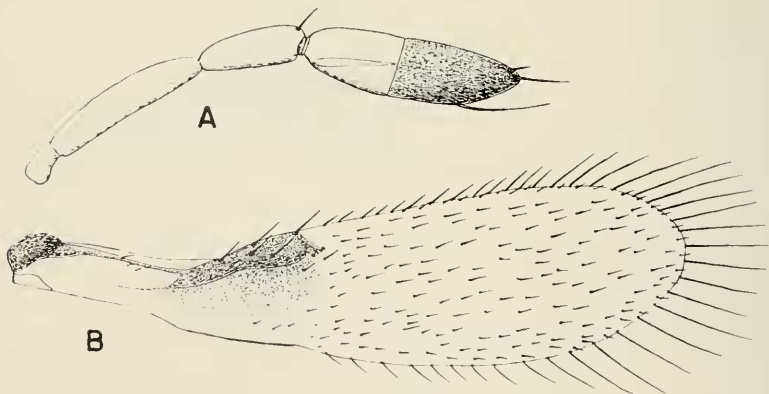


FIGURE 34. *Aphelinoidea (Diaclava) waterhousei* (Blood and Kryger). A. Antenna of male; B. forewing of male.

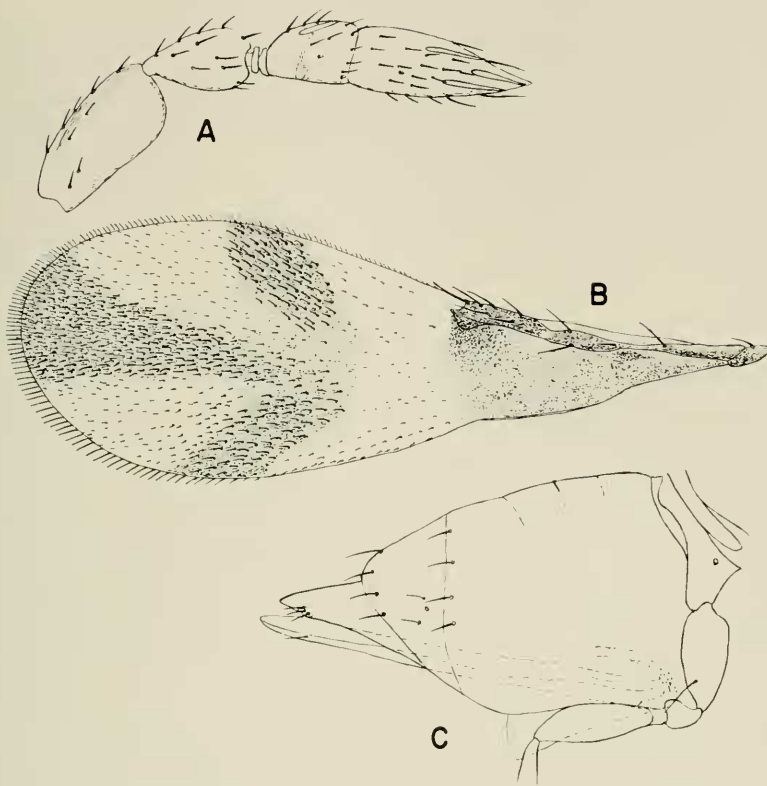


FIGURE 35. *Aphelinoidea* (*Encyrtogramma*) *habros* (DeSantis). A. Antenna of female; B. forewing; C. sketch of abdomen.

these species should be uniformly grouped under the subgenus *Aphelinoidea* (*Lathromeroides*).

SPECIES OF APHELINOIDEA.

1. *A. accepta* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 383.
2. *A. anatolica* NOWICKI, 1936, Zeit. angew. Ent. Berlin, vol. 23, pp. 144-147.
= *A. halepensis* NOWICKI, 1936, Zeit. angew. Ent. Berlin, vol. 23, p. 147.
3. *A. bischoffi* (NOWICKI), 1946, Zbl. Ges. Geb. Ent., vol. 1, p. 45, (*Lengerkeniola*). (New combination.)
4. *A. deserticola* NOWICKI, 1936, Zeit. angew. Ent. Berlin, vol. 23, p. 141.
5. *A. dolichoptera* (NOWICKI), 1933, Polsk. Pismo Ent., vol. 12, p. 4, (*Krygeriola*). (New combination.)
6. *A. fasiativentris* (GIRAULT), 1913, Mem. Queensland Mus., vol. 2, p. 106, (*Lathromeroides*). (New combination.)
7. *A. habros* (DESANTIS), 1957, Notas Mus. La Plata, vol. 19, pp. 35-37, (*Encyrtogramma*). (New combination.)
8. *A. howardii* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 104-105.

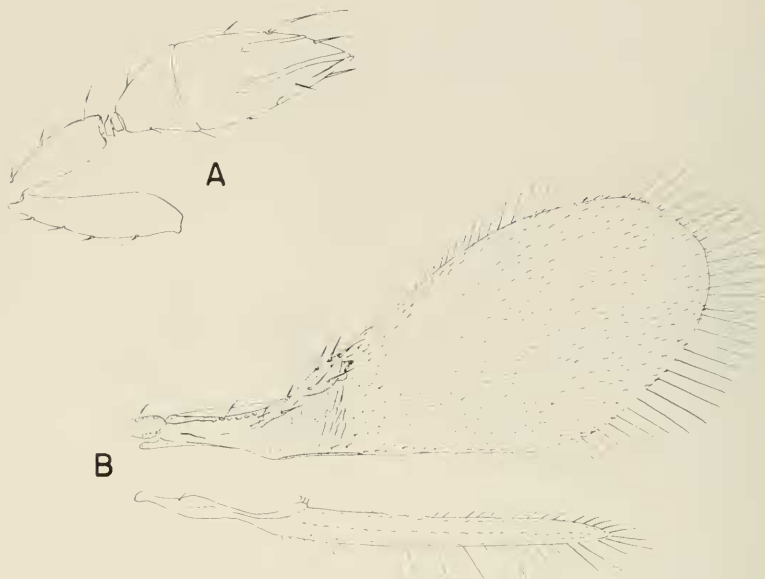


FIGURE 36. *Aphelinoidea (Aphelinoidea) semifuscipennis* Girault. A. Antenna of female; B. wings.

9. *A. huxleyi* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 107-108.
10. *A. hyacinthus* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 383.
11. *A. iucunda* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 201.
12. *A. longicarpus* (GIRAULT), 1913, Ent. News, vol. 24, p. 212, (*Lathromeroides*). (New combination.)
= *A. longicarpus* (GIRAULT), 1913, Mem. Queensland Mus., vol. 2, pp. 105-106, (*Lathromeroides*). Described twice.
13. *A. mariana* DOUTT, 1955, Insects of Micronesia, vol. 19, p. 9.
14. *A. melanosoma* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 659.
15. *A. neomexicanus* (GIRAULT), 1916, Ent. News, vol. 27, p. 5, (*Lathromeroides*). (New combination.)
16. *A. nigrioculae* (GIRAULT), 1938, Rev. Ent. Rio de Janeiro, vol. 8, p. 80, (*Thalesanna*). (New combination.)
17. *A. oceanica* TIMBERLAKE, 1926, Bishop Mus. Bull. 31, p. 41.
18. *A. painei* GIRAULT, 1913, Mem. Queensland Mus., vol. 1, p. 108.
19. *A. plutella* GIRAULT, 1912, Ent. News, vol. 23, pp. 296-297.
20. *A. redini* (GIRAULT), 1929, New Pests from Australia VI. Privately published, p. 3, (*Lathromeroides*). (New combination.)
21. *A. semifuscipennis* GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 4-6.
= *A. allipes* GIRAULT, 1914, Can. Ent., vol. 46, p. 328.
22. *A. subexserta* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 660.
23. *A. tintinnabulum* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 150.
24. *A. totinigra* GIRAULT, 1930, New Posts from Australia VII. Privately published, p. 3.

25. *A. waterhousei* (BLOOD AND KRYGER), 1928, Ent. Medd., vol. 16, p. 214, (*Diaclava*). (New combination.)
26. *A. weismanni* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 107.
27. *A. xenos* TIMBERLAKE, 1923, Proc. Haw. Ent. Soc., vol. 5, p. 145.
28. *A. xiphias* (DESANTIS), 1957, Notas Museo La Plata, vol. 19, pp. 38-39, (*Tanygramma*). (New combination.)

Genus *Apseudogramma* Girault

Apseudogramma GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 149.

TYPE SPECIES. *Apseudogramma popei* Girault.

TYPE LOCALITY. Gordonvale (Cairns), Queensland.

DISTRIBUTION. Queensland.

COMMENTS. The original description is in error regarding the number of segments of the funicle, for there are two annelli and two funicle segments instead of only one as the description states. On one side of the antenna the second annellus and first funicle segment are closely appressed to the second funicle and appear scale-like, whereas on the opposite side of the antenna they are distinct segments. It is not infrequent among the trichogrammatids to find antennal segments obliquely and tightly joined in this manner, and errors have arisen because of the incorrect interpretation of such antennal formulae.

The basal annellus and each of the funicle segments bears a stout, forward-curved spine on its dorsal surface. The second funicle segment has a whorl of short setae around its perimeter. The club consists of a large, single segment obliquely truncate distally.

The maxilla bears numerous short, conical spines on the galea; the palp is large, elongate and two-segmented.

The wings are twice longer than wide and the structural venation extends nearly 60 percent of the wing blade length distad. The stigmal vein is elongate and longer than marginal vein. The costal cell is large and contains a row of setae. The wingblade is thickly covered with setae, but vein tracts are indistinct.

All coxae have reticulate sculpturing; the scutum and scutellum are smooth. The body is short, compact. The abdomen is obliquely angled distally; the ovipositor is shorter than the abdomen and has a small hypogynium.

The characters which most readily separate this genus include the solid club, the seta on the annellus, the maxilla with conical spines and elongated two-segmented palp, and the long stigmal vein.

The relationship to other genera is not clear, but there are some features in the wings and mouthparts that are surprisingly similar to those structures seen in the cluster of genera including *Neobrachista* and *Neobrachistella*.

SPECIES OF *APSEUDOGRAMMA*.

1. *A. popei* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 149.

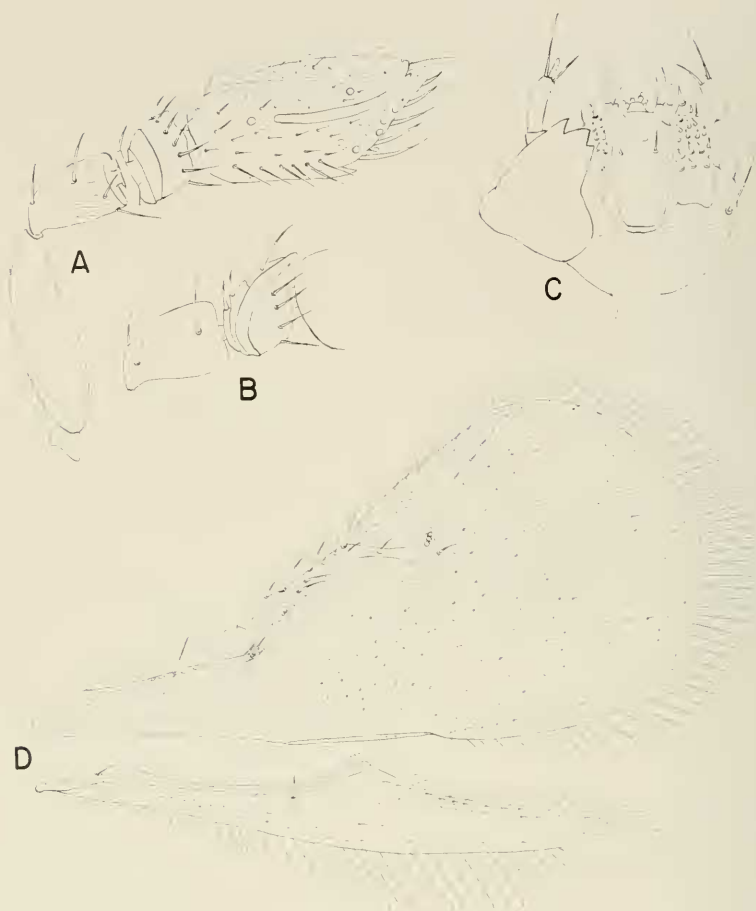


FIGURE 37. *Apseudogramma popei* Girault. A. Antenna of female, one aspect; B. pedicel and funicle, other aspect; C. mouthparts of female; D. wings of female.

Genus *Pseudogrammina* Ghesquière

Pseudogramma GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 88, (not *Pseudogramma* Bleeker, 1875, Pisces).

Pseudogrammina GHESQUIÈRE, 1946, Rev. Zool. Bot. Afr., vol. 39, p. 371. (New name for *Pseudogramma* Girault, preoccupied).

TYPE SPECIES. *Pseudogramma fasciatipenne* Girault.

TYPE LOCALITY. Herberton, Queensland.

DISTRIBUTION. Queensland.

COMMENTS. *Pseudogrammina* is known from three poorly mounted and incomplete specimens, but it may be recognized by the straight marginal vein

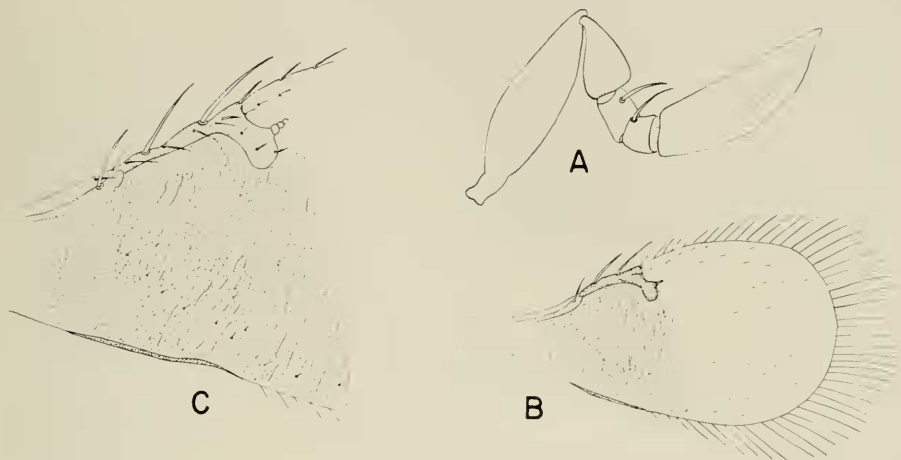


FIGURE 38. *Pseudogrammina fasciatipenne* (Girault). A. Antenna of female; B. forewing; C. detail of venation.

bearing two rather gross setae; the broad stigmal vein; and the coarse, leathery textured surface of the forewing beneath the venation. The wing disc has sparse, scattered discal setae. The funicle consists of two distinct and articulated funicle segments; the club is solid and has an obliquely angled ventral surface distally. The body is short, compact; the scutellum has a median sulcus. The male is unknown. There appears to be only one valid species. The variety described as *secundum* by Girault is only apparently different because of the viewing angle of the funicle segments. The relationship of *Pseudogrammina* to other genera is not clear.

SPECIES OF *PSEUDOGRAMMINA*.

1. *P. fasciatipenne* (GIRAULT), 1912, Mem. Queensland Mus., vol. 1, p. 88, (*Pseudogramma*).
= *P. secundum* (GIRAULT), 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 384, (*Pseudogramma*).

Genus *Trichogramma* Westwood

Trichogramma WESTWOOD, 1833, Phil. Mag., vol. 2, p. 444.

Calleptiles HALIDAY, 1833, Ent. Mag., vol. 1, p. 340.

Pentarthron PACKARD, 1872, Rec. Amer. Ent., (1871), p. 8.

Aprobosca WESTWOOD, 1878, Trans. Linn. Soc. London, Zool., vol. 1, p. 592.

Oophthora AURIVILLIUS, 1897, Ent. Tidskr., vol. 18, p. 250.

Xanthotomus ASHMEAD, 1904, Mem. Carnegie Mus., vol. 1, p. 360.

Neotrichogramma GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 38-39.

Trichogrammatana GIRAULT, 1932, New lower Hymenoptera from Australia and India.

Privately published, p. 1. (New synonymy.)

TYPE SPECIES. *Trichogramma evanescens* Westwood.

TYPE LOCALITY. England.

DISTRIBUTION. Worldwide, especially common in holarctic region.

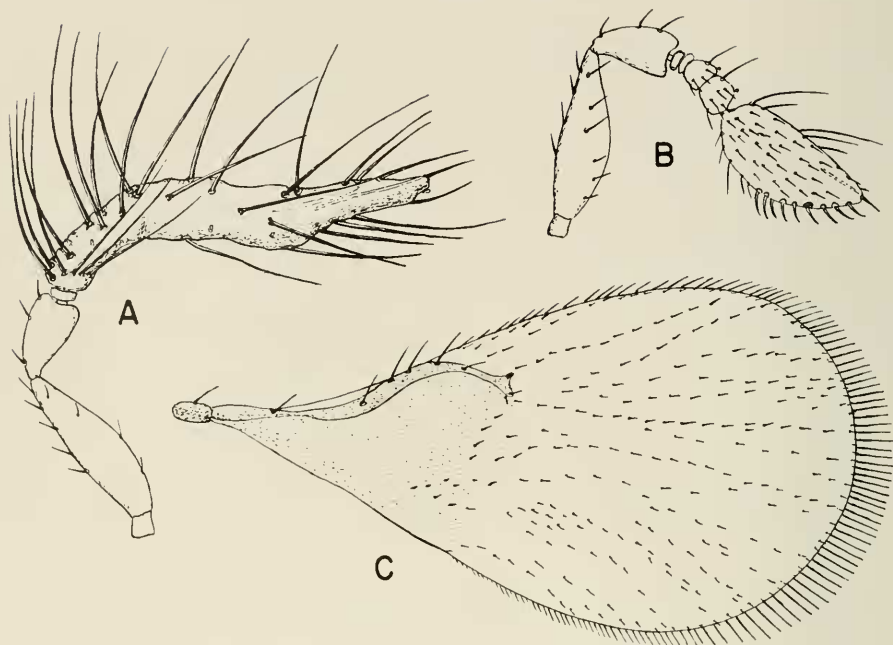


FIGURE 39. *Trichogramma evanescens* Westwood (from type). A. Antenna of male; B. antenna of female; C. forewing of female.

COMMENTS. *Trichogramma* is the most publicized genus in the family and the one with which most entomologists are familiar. It is not however the most typical genus morphologically nor the most abundant. When careful ecological appraisals are made it will probably fall far short of the status of such important genera as *Oligosita*, *Paracentrobia*, and *Aphelinoidea*. It does not represent a major division of the family for taxonomic purposes as was formerly thought.

The venation has often been described as sigmoid because the distal curvature at the end of the marginal vein onto the stigmal vein does form a shallow "S" with the curved premarginal vein. The broadly rounded wings with distinct vein tracks; the solid club and two-segmented funicle of the female; the elongate, irregularly-surfaced male club with its whorls of setae; and the compact short body are features which distinguish *Trichogramma*.

The identification of the species of *Trichogramma* is especially difficult. Quednau (1960) has provided the most recent and most sophisticated scheme for the separation of species including the necessity of breeding a series on a particular host at a specified constant temperature. This does not assist the taxonomist who is required to identify the dead specimens which he normally receives without detailed history of their development.

We believe that there are rather few morphological species in this genus, but

that these are composed of many biological or ecological forms. However, we are not prepared to offer a proper analysis of the named species in *Trichogramma* and are presenting the following list of species only slightly modified from Quednau (1960), whose work indicates that they are valid.

SPECIES OF *TRICHOGRAMMA*.

1. *T. australicum* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 109-110.
2. *T. embryophagum* (HARTIG), 1838, Jahr. Forsch. Forstw., vol. 1, p. 250, (*Encyrtus*).
3. *T. euproctridis* (GIRAULT), 1911, Trans. Amer. Ent. Soc., vol. 37, p. 46, (*Pentarthron*).
4. *T. evanescens* WESTWOOD, 1833, Phil. Mag., vol. 2, p. 444.
5. *T. fasciatum* (PERKINS), 1912, Hawaiian Sugar Planters' Assn. Ent. Bull. 10, p. 19, (*Pentarthron*).
6. *T. japonicum* ASHMEAD, 1904, Jour. N. Y. Ent. Soc., vol. 12, p. 165.
7. *T. koehleri* BLANCHARD, 1928, Physis, Buenos Aires, vol. 8, p. 600.
8. *T. minutum* RILEY, 1871, Ann. Rpt. Mo. State Bd. Agr., vol. 3, pp. 157-158.
9. *T. pretiosum* RILEY, 1879, Can. Ent., vol. 11, p. 161.
10. *T. retorridum* (GIRAULT), 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 52-55, (*Pentarthron*).
11. *T. semblidis* (AURIVILLIUS), 1897, Ent. Tidskr., vol. 18, pp. 253-255, (*Oophthora*).
12. *T. semifumatum* (PERKINS), 1910, Fauna Hawaiiensis, vol. 2, p. 659, (*Pentarthron*).
13. *T. vitripenne* WALKER, 1851, Ann. Mag. Nat. Hist., vol. 8, p. 212.

Genus *Trichogrammatoidea* Girault

Trichogrammatoidea GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 13-15.

TYPE SPECIES. *Trichogrammatoidea nana* (Zehntner). Originally described as *Chaetosticha* (sic) *nana*.

TYPE LOCALITY. Java.

DISTRIBUTION. Indonesia, Queensland, South Africa, Europe, Ceylon.

COMMENTS. Some authors have treated *Trichogrammatoidea* as a subgenus of *Trichogramma* but the three-segmented male club, the long stigmal vein, and the absence of vein track RS₁ are differences of sufficient magnitude to maintain it as a separate genus.

SPECIES OF *TRICHOGRAMMATOIDEA*.

1. *T. citri* (RISBEC), 1955, Bull. Mus. Natl. Hist. Nat. Paris, vol. 27, pp. 311-313, (*Chaetostricha*). (New combination.) (This species is provisionally placed here.)
2. *T. combretae* (RISBEC), 1951, Mem. Inst. Fr. Afr. Noire, vol. 13, p. 398, (*Chaetostricha*). (New combination.) (This species is provisionally placed here.)
3. *T. flava* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 113.
4. *T. kayo* (RISBEC), 1951, Mem. Inst. Fr. Afr. Noire, no. 13, pp. 397-398, (*Trichogramma*). (New combination.)
5. *T. lutea* GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, p. 19.
6. *T. nana* (ZEHNTNER), 1896, Med. Proefvat Oost-Jour. (n.s.), vol. 23, p. 14-16, (*Chaetostricha*).
7. *T. nodicornis* (WESTWOOD), 1879, Trans. Linn. Soc. London, Zool., vol. 1, p. 592, (*Oligosita*). (New combination.)
8. *T. rara* GIRAULT, 1925, An essay on when a fly is lovable. Privately published, p. 3.
9. *T. stammeri* NOWICKI, 1946, Zbl. Ges. Geb. Ent., vol. 1, pp. 47-50.

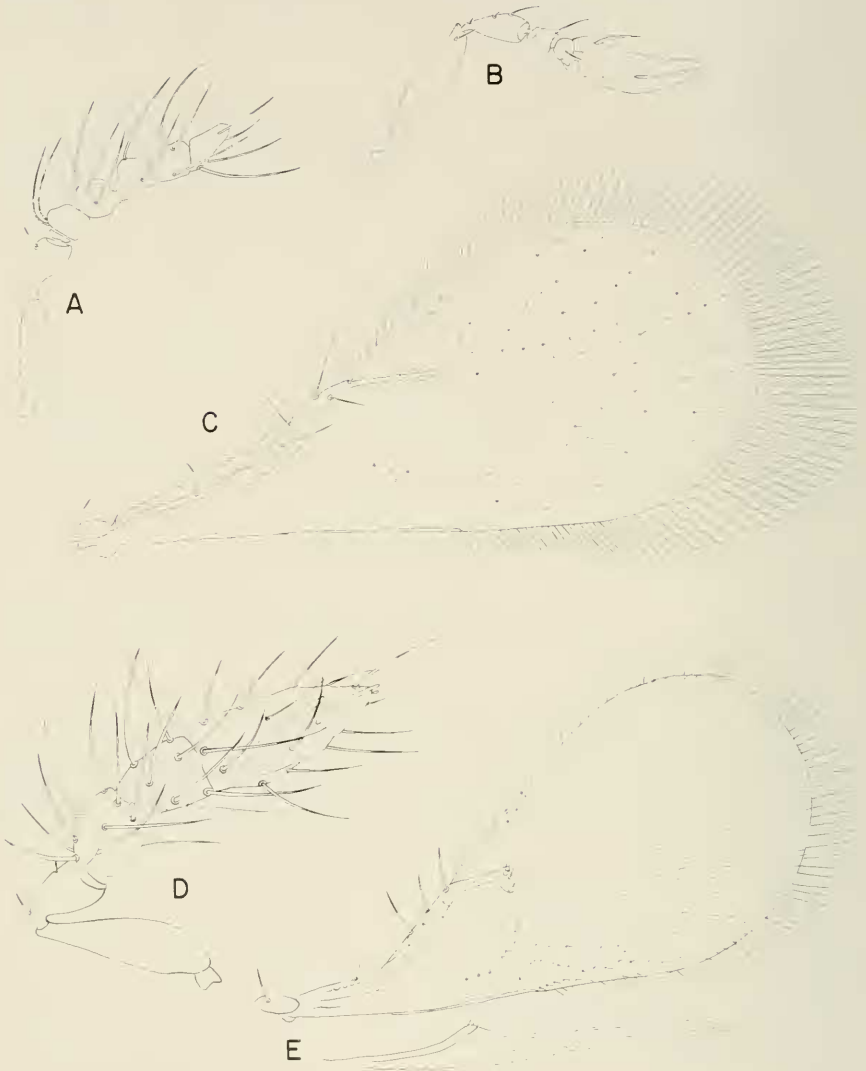


FIGURE 40. A. *Trichogrammatoidca lutea* Girault, antenna of male; B. antenna of female; C. wing of female. D. *Trichogramma australicum* Girault, antenna of male. E. *Trichogramma japonicum* Girault, wing of female.

Genus *Oligosita* Walker

Oligosita WALKER, 1851, Ann. Mag. Nat. Hist., vol. 7, pp. 212-213.

Westwoodella ASHMEAD, 1904, Mem. Carnegie Mus., vol. 1, p. 359.

Paroligosita KURDJUMOV, 1911, Rev. Russe d'Ent., vol. 11, p. 434.

Pseudoligosita GIRAULT, 1913, Mem. Queensland Mus., vol. 2, p. 104.

Zorontogramma SILVESTRI, 1915, Boll. Lab. Zool. Agr. Portici, vol. 9, p. 104.

Subgenus *Zorontogramma* Silvestri, 1915.

TYPE SPECIES. *Oligosita collina* Walker.

TYPE LOCALITY. Ireland.

DISTRIBUTION. Worldwide.

COMMENTS. This widespread, abundant and large genus is characterized by the antennal formula of a single annellus, a single elongate funicle, and an elongated three-segmented club often terminating in a rod-like projection. The forewings are narrowly rounded and the wing disc is usually nearly devoid of setae. The marginal setae are long.

Oligosita represents a major evolutionary branch of the family, and is presently the largest genus. The limits of the genus are difficult to define, and about 95 species have been described although undoubtedly a large number of these are synonyms or incorrectly placed. This genus is particularly in need of a very careful analysis and revision. Peck, Boucek and Hoffer (1964) suggested the separation of *Oligosita* into four subgenera, following the groupings of species by Nowicki (1936). We believe that there is clearly justification for the establishment of the subgenus *Zorontogramma* on the basis of the two-segmented club, but we have reservations about further subdivisions of *Oligosita* until a thorough study can be made of all species.

SPECIES OF *OLIGOSITA*.

1. *O. aces*tes (WALKER), 1839, Monogr. Chalcid., vol. 1, p. 19, (*Pteroptrix*).
= *O. werner*i KRYGER, 1951, Ent. Medd., vol. 26, p. 115.
2. *O. aesop*i GIRAULT, 1929, North American Hymenoptera, Mymaridae. Privately published, p. 28.
3. *O. americana* (GIRAULT), 1909, Psyche, vol. 16, p. 107, (*Westwoodella*).
= *O. australis* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 143-144.
4. *O. anima* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 83-84.
5. *O. aquatica* (KIEFFER), 1910, Deutsch. Zentr. Afr. Exp., vol. 3, p. 23, (*Centrobia*). (New combination.)
6. *O. arnoldi* (GIRAULT), 1913, Mem. Queensland Mus., vol. 2, p. 104, (*Pseudoligosita*). (New combination.)
7. *O. aurea* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 79.
= *O. grandiosa* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 384.
8. *O. australica* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 200.
9. *O. australiensis* GIRAULT, 1912, Mem. Queensland, Mus., vol. 1, pp. 75-76.
10. *O. biscrensis* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 583.
11. *O. brevicilia* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, pp. 144-145.
12. *O. brevipennis* HELLÉN, 1928, Mem. Soc. Fauna Fenn., vol. 4, p. 41.
13. *O. caeruleocephala* (FULLAWAY), 1914, Proc. Haw. Ent. Soc., vol. 3, p. 23, (*Westwoodella*).
14. *O. clarimaculosa* (GIRAULT), 1911, Trans. Amer. Ent. Soc., vol. 37, p. 67, (*Westwoodella*).

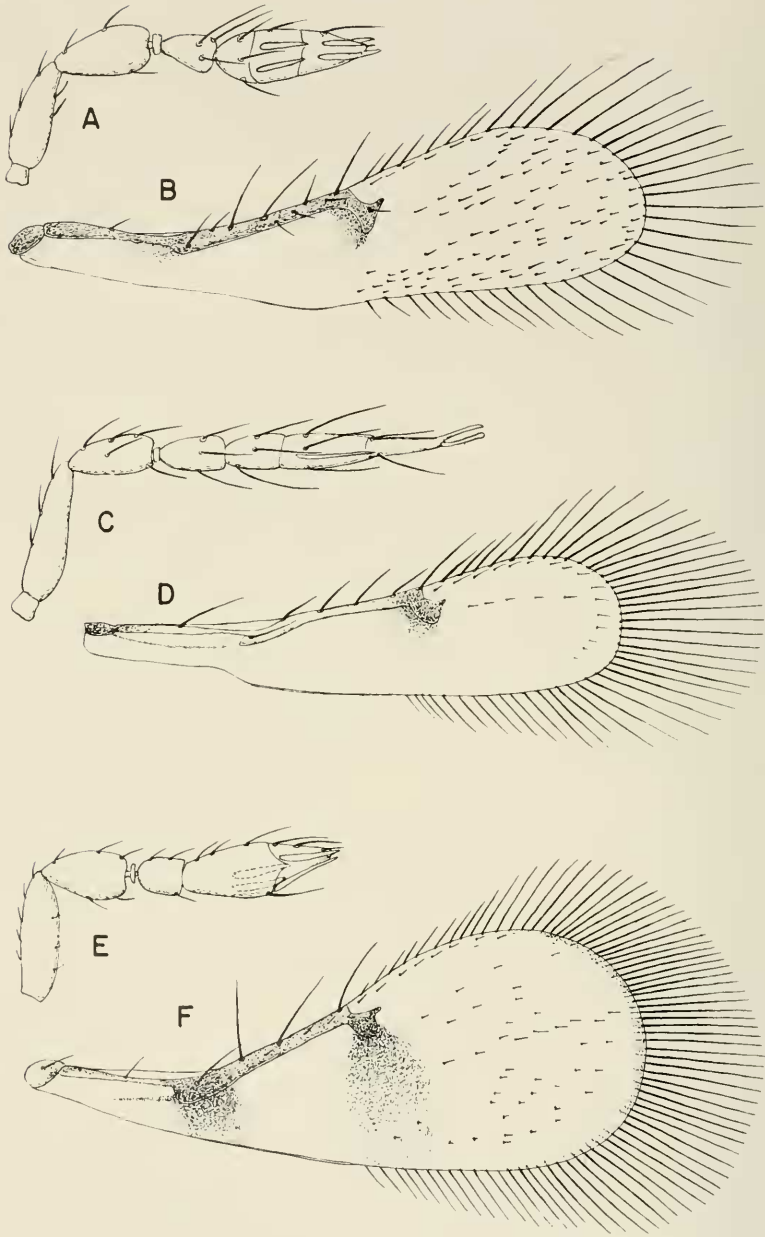


FIGURE 41. *Oligosita* species. A. *O. aectes* (Walker), antenna; B. forewing. C. *O. sanguinea* (Girault), antenna; D. forewing. E. *O. (Zorontogramma) distinctum* (Silvestri), antenna; F. forewing.

15. *O. collina* WALKER, 1851, Ann. Mag. Nat. Hist., vol. 7, p. 212.
= *O. saturata* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 645.
16. *O. comosipennis* (GIRAULT), 1911, Trans. Amer. Ent. Soc., vol. 37, p. 66, (*Westwoodella*).
17. *O. concisicilia* (GIRAULT), 1929, New Pests from Australia VI. Privately published, p. 4, (*Chaetostricha*). (New combination.)
18. *O. cypriota* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 591.
= *O. europea* NOWICKI, 1940, Zeit. angew. Ent., Berlin, vol. 26, p. 644.
19. *O. dilutior* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 583.
20. *O. distinctum* (SILVESTRI), 1915, Boll. Lab. Zool. agr. Portici, vol. 9, pp. 329-330, (*Zorontogramma*).
= *O. gastrura* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 651.
21. *O. emme* (GIRAULT), 1929, New Pests from Australia VI. Privately published, p. 3, (*Chaetostricha*). (New combination.)
22. *O. engelharti* KRYGER, 1918, Ent. Medd., vol. 12, pp. 317, 327.
23. *O. fasciatipennis* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 80-81.
24. *O. filiola* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 383.
25. *O. flava* (KURDJUMOV), 1911, Rev. Russe Ent., vol. 11, p. 436, (*Paroligosita*).
26. *O. foersteri* GIRAULT, 1914, Mitt. Mus. Zool. Berlin, vol. 7, p. 148.
27. *O. juniculata* GIRAULT, 1929, N. Amer. Hym. Mymaridae, Addendum. Privately published, p. 28.
28. *O. fuscipennis* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 84-85. (Original description does not fit specimens on slide alleged to be type series. Species unrecognizable.)
29. *O. giraulti* CRAWFORD, 1913, Can. Ent., vol. 45, p. 311.
30. *O. gracilior* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 586.
31. *O. grotiusi* GIRAULT, 1913, Mem. Queensland Mus., vol. 2, p. 103.
32. *O. gutenbergi* GIRAULT, 1929, N. Amer. Hym. Mymaridae, Addendum. Privately published, p. 28.
33. *O. haematoxantha* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 647.
34. *O. hesiodi* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 383.
35. *O. hilaris* (PERKINS), 1910, Fauna Hawaiiensis, vol. 2, pp. 658-659, (*Westwoodella*).
36. *O. impudica* KRYGER, 1918, Ent. Medd., vol. 12, pp. 317, 323.
= *O. fuscata* SOIKA, 1932, Natuurh. Maandbl., vol. 21, p. 82.
37. *O. incrassata* KRYGER, 1918, Ent. Medd., vol. 12, pp. 317-319.
38. *O. iucunda* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 200.
39. *O. inermiclava* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 144.
40. *O. insularis* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 81-82.
= *O. semiargentea* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 384.
41. *O. intencolor* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 652.
42. *O. krygeri* GIRAULT, 1929, New Pests from Australia VI. Privately published, p. 4. (New name for *pulchra* Kryger, not Girault.)
= *O. formosa* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 595. (Unnecessary new name for *pulchra* Kryger.)
= *O. aurulenta* (DOUTT), 1961, Acta Hym., vol. 1, p. 308, (*Chaetostricha*).
43. *O. kusaiensis* DOUTT, 1955, Insects of Micronesia, vol. 19, p. 5.
44. *O. longfellowi* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 200.
45. *O. lutulenta* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 648.
46. *O. magnifica* DOZIER, 1937, Jour. Agr. Univ. Puerto Rico, vol. 21, p. 139.
47. *O. major* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 383.
48. *O. marilandia* GIRAULT, 1917, Chalcidoidea nova Marilandensis II. Privately published, p. 1.

49. *O. mediterranea* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 593.
50. *O. minima* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 76-77.
51. *O. nias* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 384.
52. *O. nephoteticum* MANI, 1939, Indian Jour. Ent., vol. 1, p. 92.
53. *O. nigripes* GIRAULT, 1914, Mitt. Mus. Zool. Berlin, vol. 7, p. 148.
54. *O. nigromaculata* SOIKA, 1931, Natuurh. Maandbl., vol. 20, p. 24.
55. *O. novisanguinea* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 79-80.
= *O. neosanguinea* CRAWFORD, 1913, Can. Ent., vol. 45, p. 312. Lapsus for *O. novisanguinea* Girault.
56. *O. nudipennis* KRYGER, 1918, Ent. Medd., vol. 12, p. 317.
57. *O. oceanica* DOUTT, 1955, Insects of Micronesia, vol. 19, p. 5.
58. *O. oophagus* GIRAULT, 1916, Ann. Ent. Soc. Amer., vol. 9, p. 294.
59. *O. ovidii* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 200.
60. *O. pallida* KRYGER, 1918, Ent. Medd., vol. 12, pp. 317-318.
61. *O. paphlagonica* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 590.
62. *O. pauliani* RISBEC, 1955, Bull. Mus. Natl. Hist. Nat., vol. 27, pp. 313-316.
63. *O. phaseoli* (DOZIER), 1932, Proc. Ent. Soc. Wash., vol. 34, p. 31, (*Chaetostricha*). (New combination.)
64. *O. plebeia* (PERKINS), 1912, Hawaiian Sugar Planters' Assn. Ent. Bull. 10, p. 16, (*Westwoodella*).
65. *O. podolica* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 588.
66. *O. poincarei* GIRAULT, 1913, Mem. Queensland Mus., vol. 2, pp. 103-104.
67. *O. pulchra* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 77-78.
68. *O. pullicorpus* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 144.
69. *O. rizicola* (RISBEC), 1956, Bull. Inst. Fr. Afr. Noire (A), vol. 18, p. 147, (*Chaetostricha*). (New combination.)
70. *O. rustica* GIRAULT, 1929, N. Amer. Hym. Mymaridae, Addendum. Privately published, p. 28.
71. *O. sacra* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 83.
72. *O. sanguinea* (GIRAULT), 1911, Trans. Amer. Ent. Soc., vol. 37, p. 58, (*Westwoodella*).
= *O. claripes* GIRAULT, 1916, Ent. News, vol. 27, p. 4.
73. *O. schlicki* (KRYGER), 1918, Ent. Medd., vol. 12, pp. 305, 307, (*Chaetostricha*). (New combination.)
74. *O. scurra* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 143.
= *O. jesusi* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 384.
75. *O. shibuyae* ISHII, 1938, Kontyu, vol. 12, p. 180.
76. *O. staniforthii* WESTWOOD, 1879, Trans. Linn. Soc. London (Zool.), vol. 2, p. 591.
77. *O. subfasciata* WESTWOOD, 1879, Trans. Linn. Soc. London (Zool.), vol. 2, p. 591.
= *O. bella* (KURDJUMOV), 1911, Rev. Russe Ent., vol. 11, p. 434, (*Paroligosita*).
= *O. eremobia* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 583.
= *O. germanica* GIRAULT, 1914, Mitt. Mus. Zool. Berlin, vol. 7, p. 148.
78. *O. subfasciatipennis* (GIRAULT), 1911, Trans. Amer. Ent. Soc., vol. 37, p. 63, (*Westwoodella*).
79. *O. szelényi* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 645.
80. *O. thisbe* GIRAULT, 1929, New Pests from Australia VI. Privately published, p. 4.
81. *O. thoracica* KRYGER, 1932, Bull. Soc. Ent. Egypte (1932), p. 43.
82. *O. tridentata* GIRAULT, 1929, New Pests from Australia VI. Privately published, p. 4.
83. *O. utilis* KOWALSKI, 1917, Ann. Epiphyt., vol. 4, p. 302.
= *O. cratitia* (WATERSTON), 1922, Bull. Ent. Res., vol. 13, p. 183, (*Chaetostricha*).

84. *O. vergilii* GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 384.
85. *O. xiphidii* FERRIÈRE, 1926, Treubia, vol. 8, p. 276.

Oligositoides Doutt, new genus

TYPE SPECIES. *Oligositoides fletcheri* Doutt, new species.

TYPE LOCALITY. Muden Natal, South Africa.

DISTRIBUTION. Known only from type locality.

COMMENTS. The female antenna is similar to that of *Oligosita* in possessing a single funicle segment and a pointed, three-segmented club terminating in a rod-like projection. The male antenna has the same formula, but the scape is greatly expanded and the club segments are indistinctly divided. The forewing of *Oligositoides* is completely unlike that of *Oligosita*, for it is broadened apically, the disc has numerous cilia, the marginal vein is shorter than the stigmal vein, and the following vein tracks are distinct and well developed: RS_1 , R, r-m, Cu_1 , and A.

The genus is separated from *Soikiella* and *Bloodiella* by the elongate, cylindrical funicle segment and the slender, constricted stigmal vein.

Oligositoides fletcheri Doutt, new species

(Figure 42A, B.)

FEMALE. Thorax basically brown with propodeum yellow; abdomen with conspicuous brown band across middle portion and less distinct bands apically, remainder of abdomen yellow. Head brown with cheeks and vertex darker than area beneath antennal sockets; eyes and ocelli crimson; legs pale except hind

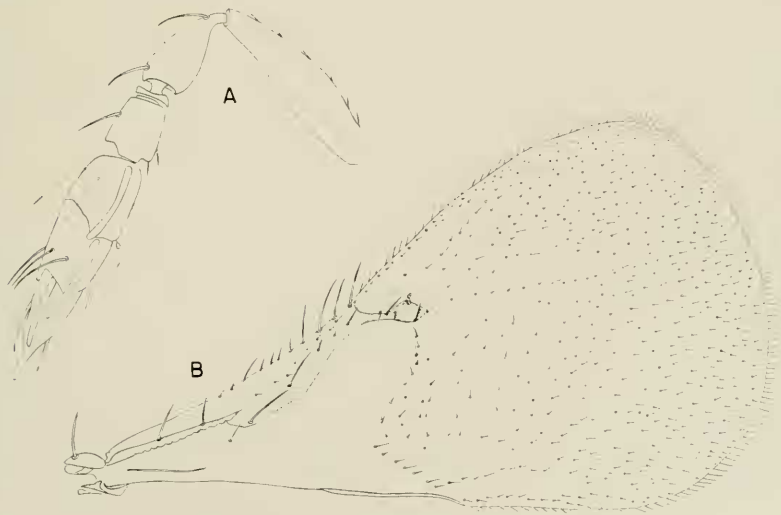


FIGURE 42. *Oligositoides fletcheri* Doutt, new species. A. antenna of female; B. forewing of female.

coxae which are brown. Wings hyaline except for faint cloud beneath brown venation; flagellum of antenna brown, darker than scape and pedicel.

Antenna with scape longer than pedicel and funicle combined, slightly shorter than club; single distinct annellus but vestige of second closely appressed to base of single funicle segment which is longer than wide, cylindrical; three club segments bear elongate sensoria and forward curving setae, the terminal segment ends in a rod-like projection.

Head as wide as thorax, vertex with about 16 setae; a pair of setae at inner border of each eye near vertex; face impressed above antennal sockets which are located slightly above the level of the lower eye margin. Maxillary palp a single segment, mandible with three distinct teeth.

Pronotum, scutum, scutellum and axillae with moderately long setae. Median sulcus present. Forewings broadened apically, disc with numerous cilia and the vein tracks RS_1 , R, r-m, Cu_1 and A are present. Costal cell moderately broad, a row of setae on its anterior margin. Premarginal vein much longer than marginal vein which bears four large setae on its anterior border. The stigmal vein slender, constricted, longer than marginal vein.

MALE. The male is similar to the female except that the scape is enormously expanded and the three club segments are less distinctly divided.

Described from 3 females, 1 male reared from eggs of a weevil, *Sciobius granosus*, on citrus, Muden Natal, South Africa, by D. Fletcher. Holotype female and allotype male to be deposited at the Plant Protection Research Institute, Pretoria. Paratypes retained in the collection of the Division of Biological Control, University of California, Berkeley.

Genus *Epoligosita* Girault

Paroligosita GIRAULT AND DODD, 1915, Mem. Queensland Mus., vol. 3, p. 145.

Epoligosita GIRAULT, 1916, Mem. Queensland Mus., vol. 5, p. 206. (New name for *Paroligosita* Girault and Dodd, preoccupied by *Paroligosita* Kurdjumov.)

TYPE SPECIES. *Paroligosita biclavata* Girault and Dodd.

TYPE LOCALITY. Ingham, Queensland.

DISTRIBUTION. Queensland, South Africa.

COMMENTS. The type species is known from a single specimen which is crushed and fragmented. The hindwings are missing, the antennae are broken, the thorax and abdomen are separated, one forewing is missing and the other is twisted. The type specimen is under a coverslip with the type of *Arrhenophagoidea coloripes* Girault. Its validity would be questionable were it not for the fact that a series of another species has been collected in South Africa. This series has confirmed the validity of *Epoligosita* on the basis of the peculiar forewing structure and venation. The genus may also be differentiated by the very pallid color, lack of thoracic sculpturing, presence of a median thoracic sulcus, and a long basitarsus of the middle leg with a distinct central seta.

***Epoligosita pallida* Doult, new species.**

(Figures 43, A, B.)

FEMALE. General body color pallid yellow, but ranging to pale yellow gold on vertex, tip of club, mandibles, basal wing venation, and mesophragma. Eyes and ocelli jet black. Base of forewing with slight fumation.

Antenna five-segmented; scape short, subequal to pedicel which is more than twice length of funicle; single annellus, single funicle segment somewhat longer than wide with whorl of setae; club a single elongate segment with elon-

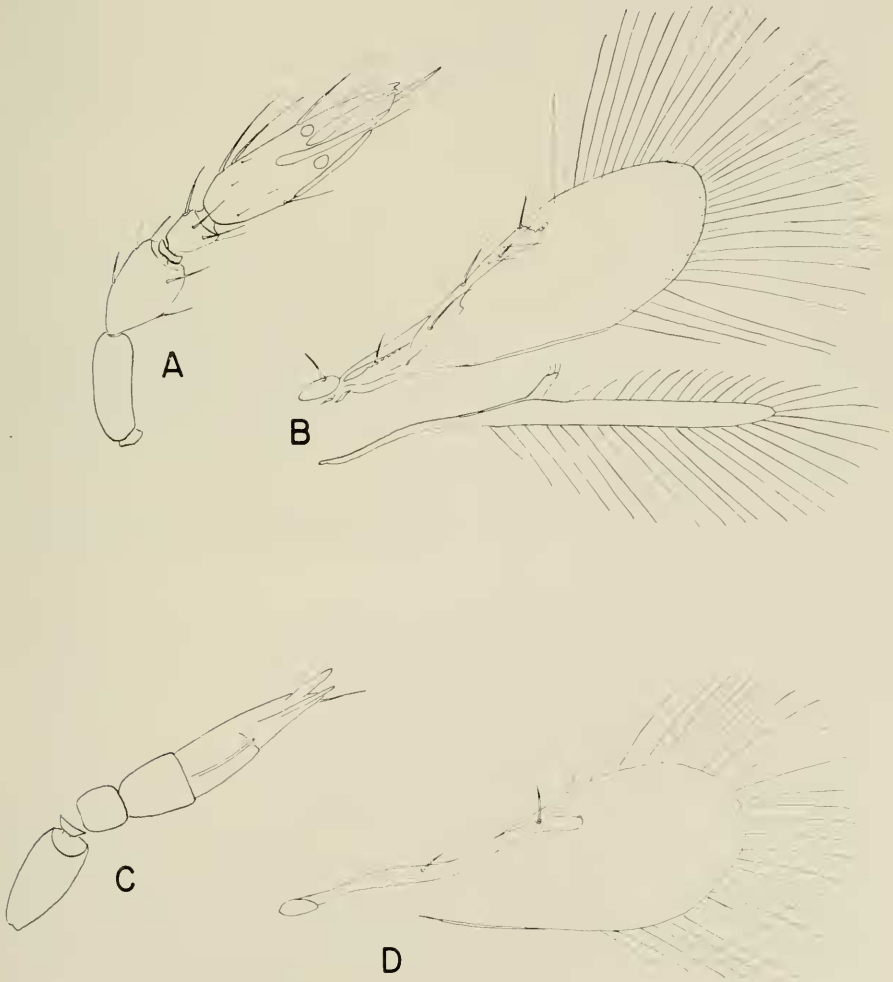


FIGURE 43. *Epoligosita* species. A. *Epoligosita pallida* Doult, new species, antenna; B. wings. C. *Epoligosita biclavata* (Girault and Dodd), antenna; D. forewing.

gate sensoria and terminating in a spine-like projection. Some individuals in the paratype series have a suggestion of a second club segment but the division is neither distinct nor complete. Antennal sockets near middle of face, above level of lower eye margin; mandibles with three distinct teeth, maxillary palp short, one-segmented. Head slightly wider than long; eyes relatively small, with few large ommatidea; ocelli widely spaced; thorax with median sulcus; mesophragma very long, extending into posterior half of the abdomen; abdomen longer than thorax; ovipositor short, located on posterior one-third of abdomen; dorsum of thorax smooth; middle basitarsus long and slender, basitarsus of fore and hind legs much shorter. Forewings somewhat almond-shaped; premarginal vein wider than basal part of marginal, juncture is abrupt and excised; marginal vein widens distally where it curves almost imperceptibly away from anterior wing border; stigmal vein is short, sessile. Premarginal vein with single large seta. Wing disc devoid of setae, marginal cilia very long; hindwings slightly curved, hamuli on an extension from the wing border.

MALE. Unknown.

The species differs from *E. biclavata* Girault in having a much shorter ovipositor and in lacking a clear division of the club into two segments. Described from a series of 18 females collected at Pretoria, South Africa, in suction traps in April, 1957, February and March, 1958. Type and paratypes will be deposited at Plant Protection Research Institute, Pretoria. Other paratypes will be distributed to British Museum (Natural History) London, U. S. National Museum, Washington, D. C., and some will be retained at the Division of Biological Control, University of California, Berkeley.

SPECIES OF *EPOLIGOSITA*.

1. *E. biclavata* (Girault and Dodd), 1915, Mem. Queensland Mus., vol. 3, p. 145, (*Paroligosita*).
2. *E. pallida* Doutt, new species.

Genus **Bloodiella** Nowicki

Bloodiella NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 579.

TYPE SPECIES. *Bloodiella andalusica* Nowicki.

TYPE LOCALITY. Turkey (female); Spain (male).

DISTRIBUTION. Europe, Middle East, Africa, Haiti.

COMMENTS. There are a number of genera that seem to be derived from one major evolutionary branch in regard to the antennal formula and from an entirely different stock in regard to the wings or other morphological features. An example is *Bloodiella* which has an antennal formula found among the *Oligosita* complex of genera, but has wings that suggest a relationship to a completely different section of the Trichogrammatidae, such as *Neobrachista* or *Ufens*. For this reason the placement of such genera is difficult, and they must now be

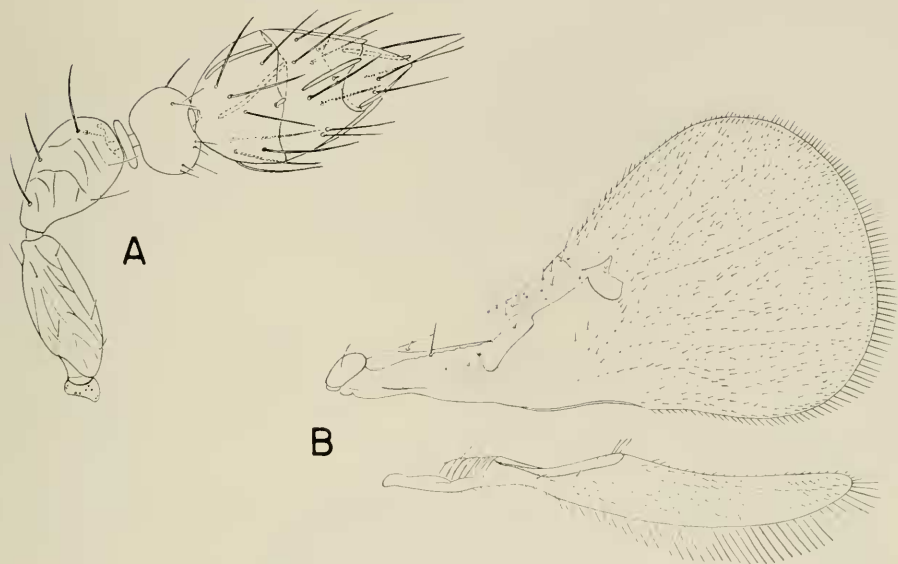


FIGURE 44. *Bloodiella andalusica* Nowicki. A. Antenna of female; B. wings (redrawn).

handled as anomalous units without clearly defined associations. This is the case with *Bloodiella*, *Soikiella*, and the new genus *Oligositoides* Doutt.

SPECIES OF *BLOODIELLA*.

1. *B. andalusica* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 581.
2. *B. gynandrophthalmae* (RISBEC), 1951, Mem. Inst. Fr. Afr. Noire, vol. 13, p. 400, (*Lathromeris*). (New combination.) (This species is provisionally placed here.)
3. *B. ormenidis* (DOZIER), 1932, Proc. Ent. Soc. Wash., vol. 34, p. 35, (*Ufens*). (New combination.) (This species is provisionally placed here.)

Genus *Soikiella* Nowicki

Soikiella NOWICKI, 1934, Polsk. Pismo Ent., vol. 12, pp. 1-2.

TYPE SPECIES. *Soikiella mongibelli* Nowicki.

TYPE LOCALITY. Mt. Etna, Italy.

DISTRIBUTION. Known only from the type specimen.

COMMENTS. This genus is related to *Bloodiella* Nowicki from which it is separated by lacking vein track RS_1 and by possessing a thicker, shorter, stigmal vein. The intersection of the subcostal vein and the premarginal vein in Trichogrammatidae is an important character just as it is in the Eulophidae. It is the difference in the nature of this intersection that is a major distinguishing feature between *Soikiella* and *Bloodiella*. In this respect *Soikiella* has wing structure similar to *Zagella* but is separated from that genus by the fact that *Zagella* has two funicle segments instead of one.

SPECIES OF *SOIKIELLA*.

1. *S. mongibelli* NOWICKI, 1934, Polsk. Pismo Ent., vol. 12, p. 2.

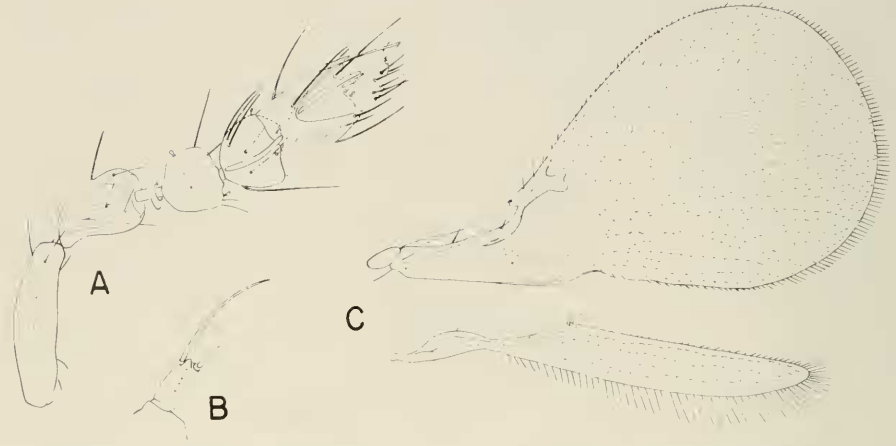


FIGURE 45. *Soikiella mongibelli* Nowicki. A. Antenna; B. maxillary palp; C. wings (redrawn).

Genus *Uscanopsis* Girault

Uscanopsis GIRAULT, 1916, Ann. Ent. Soc. Amer., vol. 9, p. 293.

TYPE SPECIES. *Uscanopsis carlylei* Girault.

TYPE LOCALITY. Port of Spain, West Indies.

DISTRIBUTION. Known only from type locality.

COMMENTS. The antennae of the type individual are broken and distorted. While the original description states that the club is two-segmented with the distal segment being very much longer than the basal one, careful examination of the type specimen at the U. S. National Museum and paratypes at the Istituto di Entomologia Agraria di Portici show that the description is erroneous for the club is four-segmented. The terminal segment of the club has rod-like extensions. The antenna appears to lack a funicle so the formula seems to be two anelli and four club segments. The forewings are without distinct vein tracks. Another distinguishing feature is the enormous apical spur on the hind tibia. The single-segmented maxillary palp has the unusual shape as shown in the figure.

This genus may be related to *Uscana* by the antennal structure, and possibly also to *Giraultiola*, but the combination of morphological characters described above clearly establish its distinctness. The genus is known only from the type series reportedly reared from eggs of the membracid, *Membracis tectigera*.

SPECIES OF *USCANOPSIS*.

1. *U. carlylei* GIRAULT, 1916, Ann. Ent. Soc. Amer., vol. 9, p. 253.

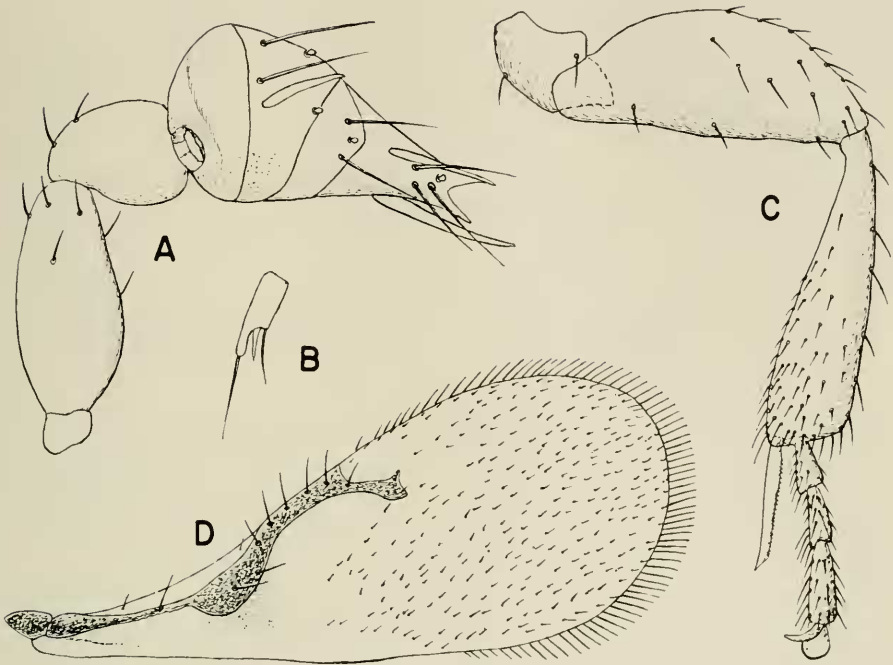


FIGURE 46. *Uscanopsis carlylei* Girault. A. Antenna of female; B. maxillary palp; C. hind tibial spur; D. forewing.

Genus *Paruscanoidea* Girault

Paruscanoidea GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 152.

TYPE SPECIES. *Paruscanoidea dickensi* Girault.

TYPE LOCALITY. Capeville (Pentland), Queensland.

DISTRIBUTION. Australia: Queensland, New South Wales, Victoria. (India?)

COMMENTS. *Paruscanoidea* belongs to the cluster of genera that includes *Thorcauia*, *Pterygogramma*, and *Pseudobrachysticha*. It is separable by the apically rounded wings nearly devoid of discal setae combined with the antenna which lacks a funicle but has a three segmented club consisting of two obliquely divided basal segments and a much longer segment terminally. There is a straight row of setae conspicuously located on the inner surface of the hind tibia. A third species, *P. indica* Mani, from India needs confirmation.

SPECIES OF *PARUSCANOIDEA*.

1. *P. australia* GIRAULT, 1916, Mem. Queensland Mus., vol. 5, p. 207.
2. *P. dickensi* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 152.
3. *P. indica* MANI, 1939, Indian Jour. Ent., vol. 1, p. 91.

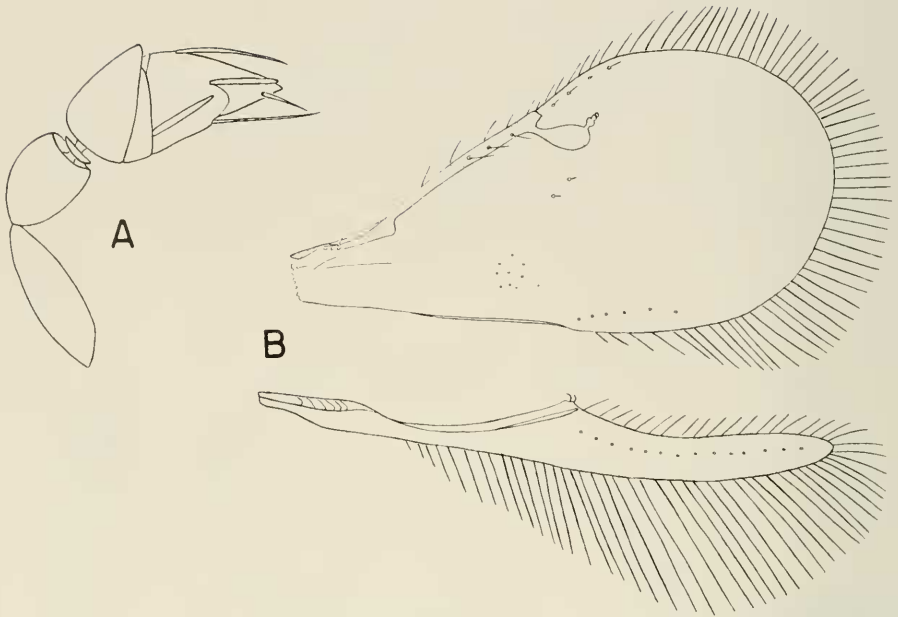


FIGURE 47. *Paruscanoidea dickensi* Girault. A. Antenna of female; B. wings of female.

Genus *Uscanella* Girault

Uscanella GIRAULT, 1911, Arch. Naturg., vol. 77, p. 128.

TYPE SPECIES. *Uscanella bicolor* Girault.

TYPE LOCALITY. Tunapunta, Trinidad.

DISTRIBUTION. Trinidad.

COMMENTS. The club is three-segmented, not two-segmented as the original description states. The basal club segment, which was overlooked by Girault, is small and closely appressed to the large second club segment. The club is widest at the division between the second and third club segments and then tapers to a point distally. There are two annelli and no funicle. The forewing structure is peculiar for the stigmal vein is quite large and nearly parallel sided. It is nearly equal in width and length to the marginal vein. A small postmarginal extension is present. The wing disc is devoid of setae in a large area beneath the venation and extending distally between vein tracks r-m and Cu. There are a few setae distally between vein tracks RS_2 and r-m. The marginal cilia are long on the apex of the wing but are very abruptly shortened near the venation.

SPECIES OF *USCANELLA*.

1. *U. bicolor* GIRAULT, 1911, Arch. Naturg., vol. 77, pp. 128-129

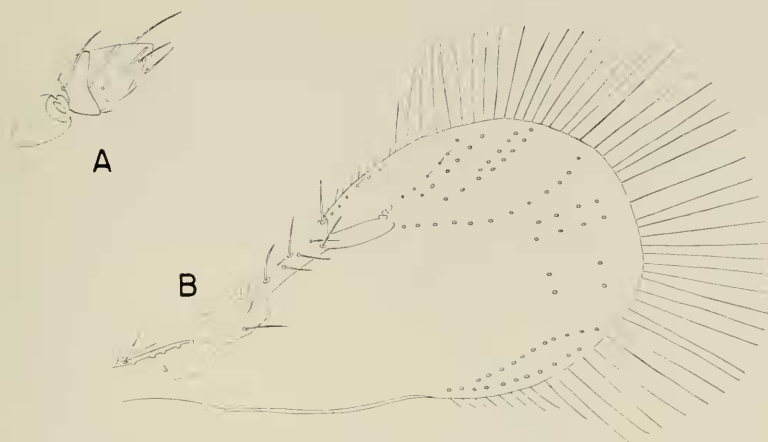


FIGURE 48. *Uscanella bicolor* Girault. A. Pedicel, annelli, and club of female; B. forewing of female.

Genus *Tumidiclava* Girault

Tumidiclava GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 6-8.

Orthoneura BLOOD, 1922, Ann. Rept. Proc. Bristol Nat. Soc., vol. 5, pp. 257-258.

Orthoneura BLOOD AND KRYGER, 1928, Ent. Medd., vol. 16, p. 211.

Orthoneurella BLOOD AND KRYGER, 1929, Ent. Medd., vol. 16, p. 322. (New name for *Orthoneura* Blood, preoccupied by *Orthoneura* Macquart, Syrphidae.)

TYPE SPECIES. *Tumidiclava pulchrinotum* Girault.

TYPE LOCALITY. Centralia, Illinois.

DISTRIBUTION. North America, Europe, Africa, Australia.

COMMENTS. *Tumidiclava* may be related to the *Aphelinoidea* stock. This is suggested by the short structural venation with its components tending to be fused, the short and broad stigmal vein, and the lack of vein tracks. The female of *Tumidiclava* is distinguished by the antennal club which is very swollen, short, three-segmented and terminated by a rod-like projection. There are two annelli and no funicle. The male antennal club is shaped like the female, but consists of five segments. The discal setae of the forewing are irregularly arranged and rather sparsely distributed.

SPECIES OF *TUMIDICLAVA*.

1. *T. bimaculata* (BLOOD), 1923, Ann. Rept. Proc. Bristol Nat. Soc., vol. 5, p. 257, (*Orthoneurella*).
2. *T. canalis* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, pp. 152-153.
3. *T. ciliata* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 96-97.
4. *T. minuscula* NOWICKI, 1940, Zeit. angew. Ent., vol. 26, p. 655.
5. *T. niveipes* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 152.
6. *T. pulchrinotum* GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 8-9.
7. *T. subcaudata* NOWICKI, 1936, Zeit. angew. Ent. Berlin, vol. 23, p. 139.

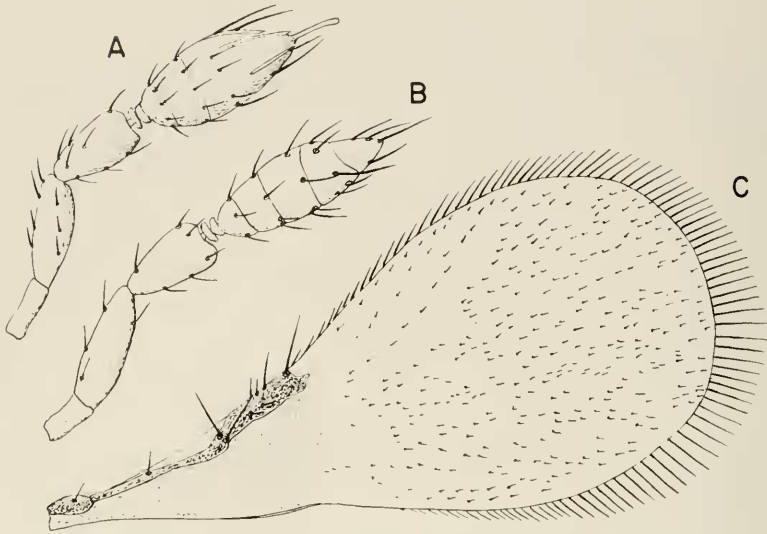


FIGURE 49. *Tumidiclava bimaculata* (Blood and Kryger). A. Antenna of female; B. antenna of male; C. forewing.

Genus *Lathromeromyia* Girault

Lathromeromyia GIRAULT, 1914, Zeit. Wiss. Insektenbiol., vol. 10, p. 308.

Lathromeromyia GIRAULT, 1916, Entom., vol. 49, p. 199. (Described twice.)

TYPE SPECIES. *Lathromeromyia perminuta* Girault.

TYPE LOCALITY. Pasoeroean, Java.

DISTRIBUTION. Java, Cameroons, West Africa, South America.

COMMENTS. The type series consists of two females on a slide, each under a separate cover slip. The slide is labeled "*Lathromeromyia perminuta* Girault Type" in Girault's handwriting. There are no other data on the slide but the original description was from "two females collected by Herr P. Van der Goot, from eggs of *Cicada* sp?, 8/9/1913 on leaves of sugar cane, Pasoeroean, Java." This slide is in the Queensland Museum and Mr. E. C. Dahms, Curator of Entomology, has given it the register number T. 6429, because it is undoubtedly the type series on which the generic description was based.

The two specimens are very poorly mounted. The heads have been removed and fragmented. No complete antenna nor wing could be found. Even so the description originally made by Girault can be improved by the addition of a few characters which he failed to mention:

FEMALE. Length 0.32 mm., abdomen 0.18 mm., thorax 0.14 mm., ovipositor exerted very slightly, ovipositor length 0.18 mm. Antennal scape not seen, pedicel normal, two annelli, no funicle, club four-segmented, broadest at basal half, tapering to point apically, each club segment with numerous forward-

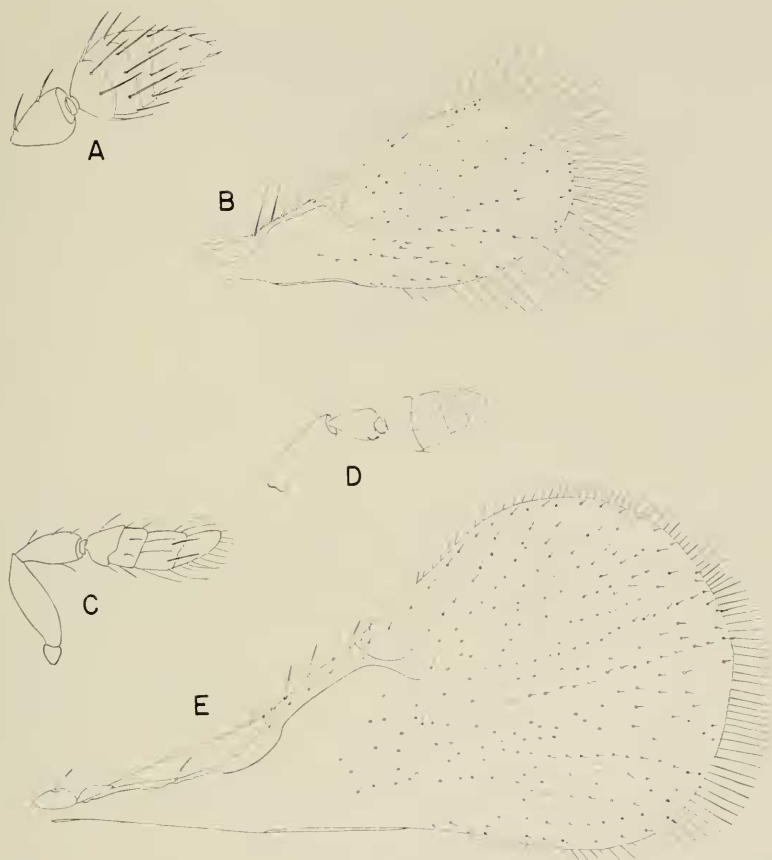


FIGURE 50. A. *Lathromeromyia perminuta* Girault, antenna; B. wing. C. *Giraultiola fidiæ* (Ashmead), antenna of female; D. antenna of male; E. wing of female.

projecting setae. Antennal sockets low on face. Mandibles with three teeth, but arranged with one tooth farther inward than other two. Dorsal sclerites of thorax with very long setae, these present on pronotum, scutum, scutellum. Marginal vein straight, longer than premarginal or stigmal vein, premarginal vein wide at base. Vein tracks r-m and Cu present but indistinct. Wings large for size of body, longer than total body length. Legs very long for size of body, coxae and femora enlarged, tibia of middle legs with long spines on anterior surface. Mesophragma extends deeply into the conic-ovate abdomen.

Pteryogramma cercopicida Risbec, described from the Cameroons, belongs to *Lathromeromyia* and a third species, yet undescribed, has been collected in a suction trap at Pretoria, South Africa.

The combination of the following characters distinguishes this genus: anten-

nal club four-segmented, funicle absent; mandibles with inner tooth; marginal vein straight, longer than stigmal or premarginal veins; body short; legs and wings long; thorax with prominent setae on scutum, scutellum and other dorsal sclerites.

SPECIES OF *LATHROMEROMYIA*.

1. *L. cercopida* (RISBEC), 1956, Bull. Inst. Fr. Afr. Noire (A), vol. 18, p. 816, (*Pterygogramma*). (New combination.)
2. *L. perminuta* GIRAULT, 1914, Zeit. Wiss. Insektenbiol., vol. 10, p. 308.

Genus *Giraultiola* Nowicki

Giraultiola NOWICKI, 1936, Zeit. angew. Ent. Berlin, vol. 23, p. 136.

Giraultia STEFFAN, 1954, Bull. Mus. Hist. Nat. Paris, vol. 26, p. 669.

(Lapsus for *Giraultiola* Nowicki).

TYPE SPECIES. *Brachysticha fidiæ* Ashmead.

TYPE LOCALITY. Euclid, Ohio.

DISTRIBUTION. Ohio, Pennsylvania, Virginia.

COMMENTS. In this genus the female club is four-segmented with a small annellus and no funicle. The male club is also four-segmented but the annellus is enlarged and appears almost as a basal club segment. The forewing lacks vein track RS_1 . The abdomen is elongated with a long but not exerted ovipositor.

SPECIES OF *GIRAULTIOLA*.

1. *G. fidiæ* (ASHMEAD), 1894, Cincinnati Soc. Nat. Hist. Jour., vol. 17, p. 171 (*Brachysticha*). = *G. cicadae* (HOWARD), 1898, Can. Ent., vol. 30, p. 102, (*Lathromeris*).

Genus *Uscanoidea* Girault

Uscanoidea GIRAULT, 1911, Arch. Naturg., vol. 77, pp. 129-130.

TYPE SPECIES. *Uscanoidea nigriventris* Girault.

TYPE LOCALITY. Paraiso, Canal Zone, Panama.

DISTRIBUTION. Known only from type locality.

COMMENTS. Girault described the club as being two-segmented, and the antenna without an annellus. This is entirely incorrect. Although the type series is in very poor condition for study, it is clear that the antenna is not as described but has a short, globular pedicel, a very small annellus, and a club which has at least three segments. The base of the club is broad. It appears to have a basal concavity which surrounds the annellus and the apical part of the pedicel. The club segmentation is irregular and oblique. The club tapers sharply from the base to its apex.

The wing is very similar to that of *Chaetostricha*, and the genera may be related. The abdomen is moderately long, and the ovipositor is well developed but only slightly exerted. The dorsum of the abdomen has a series of conspicuous bands. The male is similar to the female.

SPECIES OF *USCANOIDEA*.

1. *U. nigriventris* GIRAULT, 1911, Arch. Naturg., vol. 77, pp. 129-130.

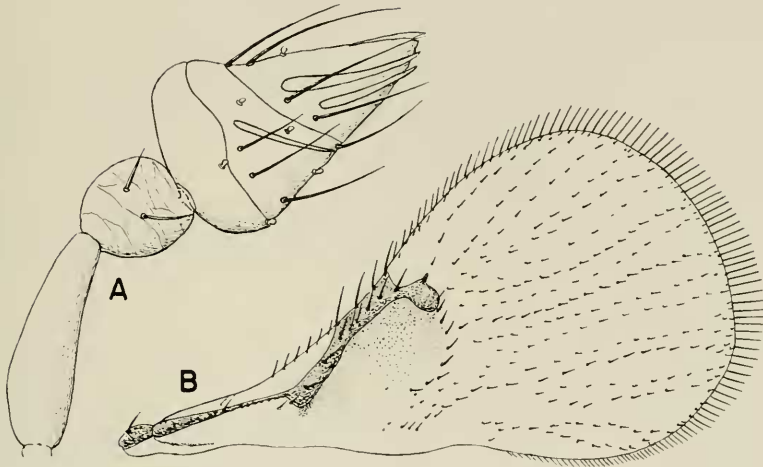


FIGURE 51. *Uscanoidea nigrivertris* Girault. A. Antenna of female; B. forewing of female.

Genus *Zaga* Girault

Zaga GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, p. 30.

TYPE SPECIES. *Zaga latipennis* Girault.

TYPE LOCALITY. Charlottesville, Virginia.

DISTRIBUTION. Virginia.

COMMENTS. *Zaga* has a four-segmented club, although the basal segment resembles a large funicle segment. The marginal vein is clavate, and the thick stigmal vein is projected from it at almost a right angle into the wing blade. The vein tracks are very distinct. The abdomen is long and slender. The ovipositor extends along the entire venter of the abdomen and is slightly exerted.

SPECIES OF *ZAGA*.

1. *Z. latipennis* GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 31-32.

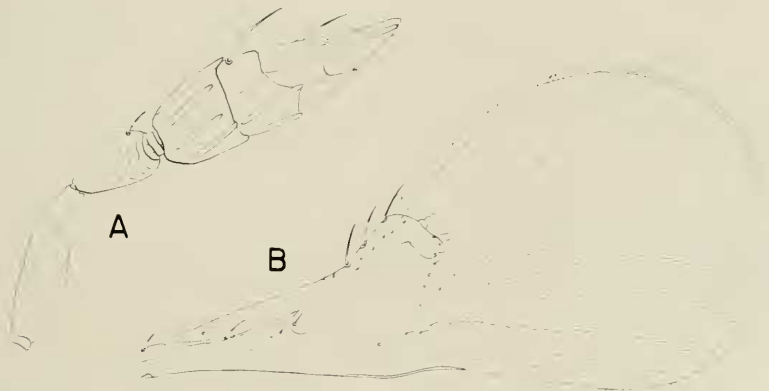


FIGURE 52. *Zaga latipennis* Girault. A. Antenna of female; B. wing.

Genus *Uscana* Girault

Uscana GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 22-23.

Bruchoctonus GRESE, 1923, Bul. Saratov Seed Select. Admin. Sugar Trust, Kiev, vol. 7, p. 117 (not seen).

Lathromeris of authors, not Foerster, 1856.

TYPE SPECIES. *Uscana semifumipennis* Girault.

TYPE LOCALITY. Beeville, Texas (bred in Hawaii from bean weevil material collected at Beeville).

DISTRIBUTION. Worldwide.

COMMENTS. *Uscana* is characterized by a four-segmented club, the basal segment of which clearly retains funicle-like features. There is one distinct annellus, and in some individuals there is a slight suggestion of a second annellus closely appressed to the basal club segment. The club bears long setae and both pedunculate and linear sensillia. The facial scrobes are deeply impressed.

The forewing normally has the wing blade beneath the venation infuscated. The marginal vein is straight. Vein track RS_1 tends to converge with the base of *Cu*. The ovipositor is notably short and is often no more than one-third the length of the abdomen and originates posteriorly to the middle of the abdomen.

SPECIES OF *USCANA*.

1. *U. bruchidivorax* STEFFAN, 1954, Bull. Mus. Natl. Hist. Nat., vol. 26, pp. 671-672.
2. *U. galtoni* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 103-104.
3. *U. giraulti* (SOIKA), 1934, Natuurh. Maandbl., vol. 23, p. 49 (*Lathromeris*).
4. *U. inflaticornis* (NOWICKI), 1936, Zeit. angew. Ent. Berlin, vol. 23, pp. 134-136, (*Lathromeris*).
5. *U. johnstoni* (WATERSTON), 1926, Bull. Ent. Res., vol. 16, p. 309, (*Lathromeris*).
= *U. johnstoni phoenica* (NOWICKI), 1936, Zeit. angew. Ent. Berlin, vol. 23, p. 136, (*Lathromeris*).
6. *U. lariophaga* STEFFAN, 1954, Bull. Mus. Natl. Hist. Nat., vol. 26, pp. 670-671.
7. *U. marilandica* GIRAULT, 1918, North American Hymenoptera Trichogrammatidae. Privately published, p. 10.
8. *U. mukerjii* (MANI), 1935, Rec. Ind. Mus., vol. 37, p. 337, (*Chaetostricha*).
9. *U. pacifica* (DOUTT), 1955, Ins. Micronesia, vol. 19, p. 10, (*Lathromeris*). (New combination.)
10. *U. pallidipes* GIRAULT, 1915, Ent. News, vol. 26, p. 396.
11. *U. princeps* STEFFAN, 1954, Bull. Mus. Natl. Hist. Nat., vol. 26, p. 672. (New name for *Lathromeris scutellaris* of authors, not Foerster 1856.)
12. *U. semifumipennis* GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 22-23.
13. *U. senex* (GRESE), 1923, Bul. Saratov Seed Select. Adm. Sugar Trust, Kiev, vol. 7, p. 117 (reference not seen), (*Bruchoctonus*).
= *U. bruchocida* (VASILIEV), 1947, Rev. Ent. U.S.S.R., vol. 29, pp. 36-43, (*Lathromeris*).

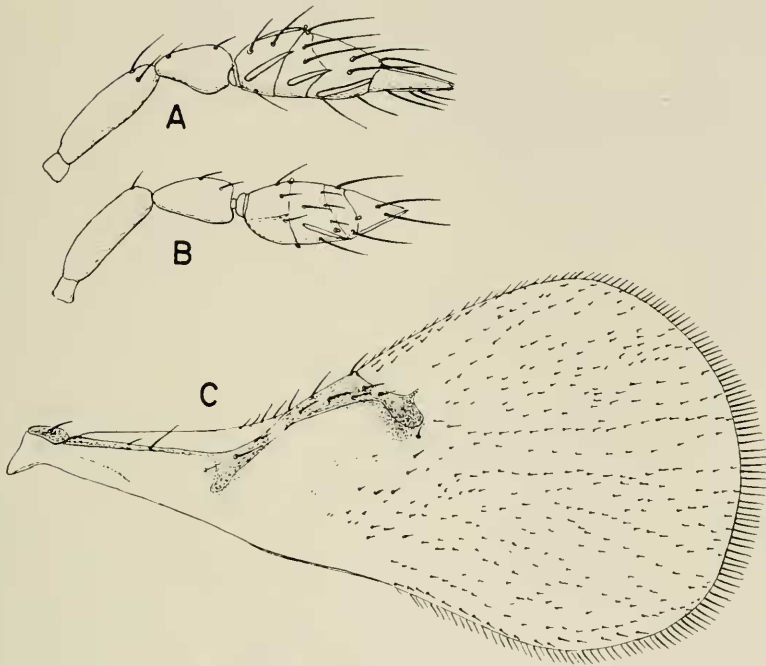


FIGURE 53. *Uscana semifunipennis* Girault. A. Antenna of female; B. antenna of male; C. forewing.

Genus *Neocentrobiella* Girault

Neocentrobiella GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 149.

TYPE SPECIES. *Neocentrobiella rara* Girault.

TYPE LOCALITY. Gordonvale (Cairns), Queensland.

DISTRIBUTION. Known only from type specimen.

COMMENTS. Although this genus is known from the single female individual it is sufficiently distinct to justify the retention of the generic rank. The antenna is long, slender, consisting of three-segmented club, two funicle segments, two annelli, an elongate pedicel and a comparatively short scape. The two terminal club segments bear elongate tyloidea which are not present on basal club segment. Abdomen is much longer than thorax; ovipositor is very long, greatly exerted. The valvifers are projected forward to thorax. The marginal vein is long, straight. The antenna and wing suggest that there may well be a relationship with the subgenus *Ittys* of *Paracentrobia*.

SPECIES OF *NEOCENTROBIELLA*.

1. *N. rara* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 149.

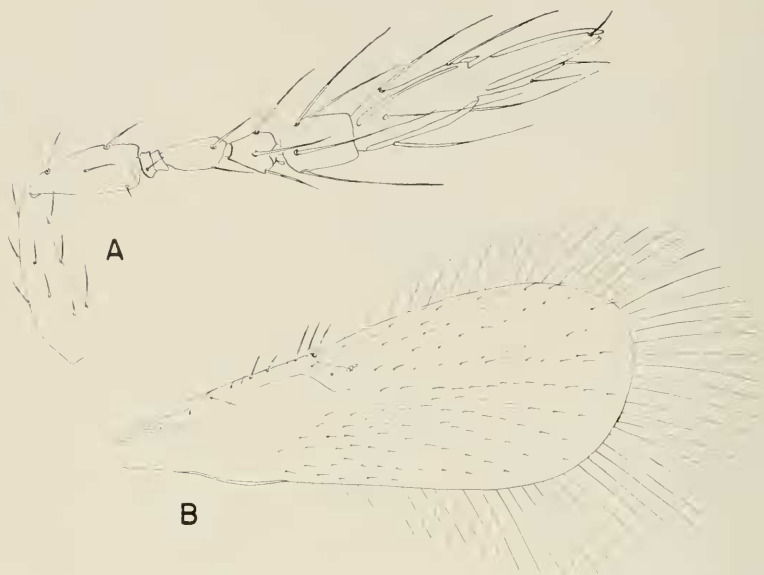


FIGURE 54. *Neocentrobiella rara* Girault. A. Antenna of female; B. wing of female.

Genus *Chaetostricha* Walker

Chaetostricha WALKER, 1851, Ann. Mag. Nat. Hist., vol. 7, p. 210. (Not of authors.)

Centrobia FOERSTER, 1856, Hymenopterologische Studien, vol. 2, p. 87. (New synonymy.)

Centrobiella GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 90. (New synonymy.)

Ratzeburgalla GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 8, p. 80. (New synonymy.)

TYPE SPECIES. *Chaetostricha dimidiata* Walker.

TYPE LOCALITY. Holywood, North Ireland.

DISTRIBUTION. Worldwide.

COMMENTS. *Chaetostricha* has erroneously been applied to species of *Oligosita* and closely allied genera. It is the proper name for the species that have been placed under *Centrobia* Foerster. The genus is characterized by an elongate, tapering three-segmented club preceded by two funicle segments, the second of which is very long and cylindrical, much longer than the first segment. There are two annelli. The marginal vein is long, straight; the stigmal vein is usually conspicuously constricted. The ovipositor is long and usually exerted.

SPECIES OF *CHAETOSTRICHA*.

1. *C. dimidiata* WALKER, 1851, Ann. Mag. Nat. Hist., vol. 7, p. 211.
2. *C. doricha* (WALKER), 1839, Mon. Chalcid. I, p. 15, (*Pteroptrix*). (New combination.)
= *C. walkeri* (KRYGER), 1918, Ent. Medd. 26, p. 115, (*Centrobia*).
= *C. errata* (NOWICKI), 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 567.
3. *C. fumipennis* (BLOOD), 1923, Ann. Rept. Proc. Bristol Nat. Soc., vol. 5, p. 255, (*Centrobia*). (New combination.)

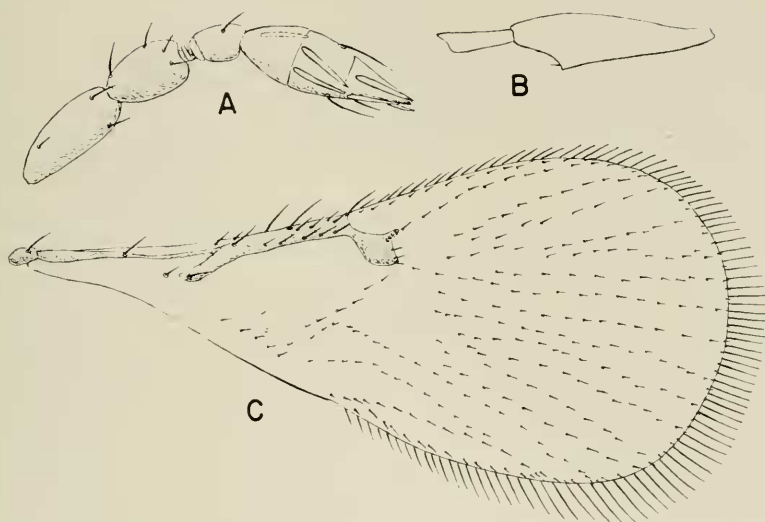


FIGURE 55. *Chaetostricha doricha* (Walker). A. Antenna of female; B. foretibia; C. forewing.

4. *C. krygeri* (SOIKA), 1934, Natuurh. Maandbl., vol. 23, p. 49, (*Centrobia*). (New combination.)
5. *C. magna* (GIRAULT), 1913, Mem. Queensland Mus., vol. 2, p. 105, (*Centrobiella*). (New combination.)
6. *C. mahensis* (KIEFFER), 1916, Nov. Zool., vol. 24, p. 230, (*Centrobia*). (New combination.)
7. *C. minor* (SILVESTRI), 1918, Boll. Lab. Zool. Agr. Portici, vol. 12, p. 250, (*Centrobia*). (New combination.)
8. *C. mulierum* (GIRAULT), 1912, Mem. Queensland Mus., vol. 1, p. 91, (*Centrobiella*). (New combination.)
9. *C. nysiusae* (RISBEC), 1956, Bull. Inst. Fr. Afr. Noire (A), vol. 18, p. 149, (*Centrobia*). (New combination.)
10. *C. particula* (GIRAULT), 1929, New Pests from Australia VI. Privately published, p. 3, (*Centrobiella*). (New combination.)
11. *C. silvestrii* (KRYGER), 1920, Ent. Medd., vol. 8, p. 186, (*Centrobia*). (New combination.)
12. *C. similis* (SILVESTRI), 1918, Boll. Lab. Zool. Agr. Portici, vol. 12, p. 250, (*Centrobia*). (New combination.)
13. *C. spinosus* (GIRAULT), 1931, New habit in an old insect, *Homo pudicus* and new Eurytomidae. Privately published, p. 4, (*Parufens*). (New combination.)
14. *C. steineri* (NOWICKI), 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 566, (*Centrobia*). (New combination.)
15. *C. walkeri* (FOERSTER), 1852, Verh. Nat. f. Preus., pp. 26-28, (*Trichogramma*). (New combination.)

Genus *Thoreauia* Girault

Thoreauia GIRAULT, 1916, Entomologist, vol. 49, pp. 102-103.

Tennysoniania GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 203. (New synonymy.)

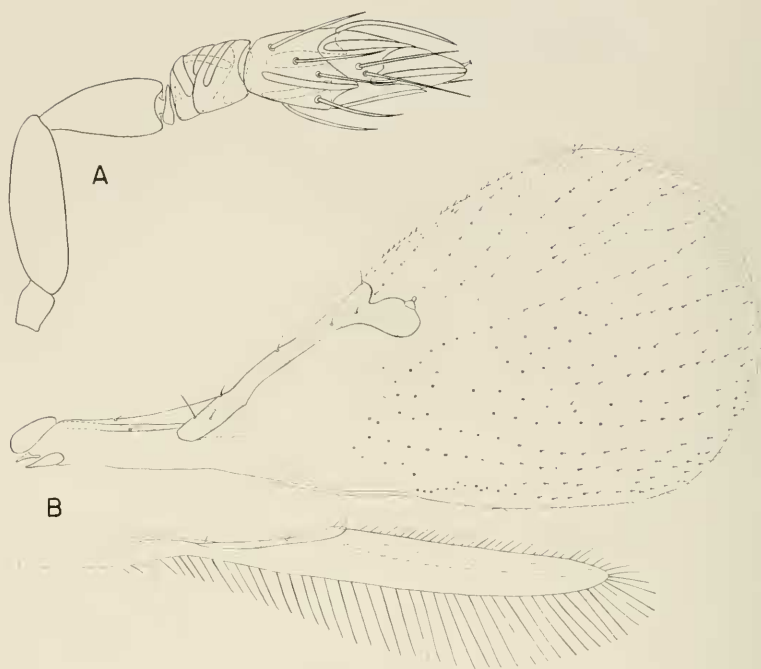


FIGURE 56. *Thoreauia compressiventris* Girault (specimen from Indooroopilly). A. Antenna of female; B. wings of female.

Austrobelia GIRAULT, 1923, Loves Wood and Won in Australia. Privately published, p. 3. (New synonymy.)

Austrorella GIRAULT, 1928, A Prodigious Discourse on Wild Animals. Privately published, p. 2. (Attempted emendation of *Austrobelia*.)

TYPE SPECIES. *Thoreauia compressiventris* Girault.

TYPE LOCALITY. Port Darwin, Northern Territory, Australia.

DISTRIBUTION. Australia: Northern Territory, Queensland, Victoria.

COMMENTS. *Thoreauia* is represented by three species from Australia, all associated with gall making coccids on *Eucalyptus*. These three species formerly were considered to be monotypic species of three separate genera, but they are congeneric.

Thoreauia is outstanding because of the enormous development of the valvifers of the ovipositor which extend far forward into the thorax. The anterior extremity of the valvifers in *T. compressiventris* is housed in a modified portion of the membranous area between the anterior margin of the scutum and the pronotum. This projection may be capped externally by a small, sclerotic button-

like structure. The ovipositor extends posteriorly from this point along the entire venter of the abdomen. This is the greatest development of the ovipositor among trichogrammatids and presumably must be an adaptation to permit the very deep penetration of a substrate for hosts. It is noteworthy that such a peculiar internal development of the ovipositor is made possible only by the broadly joined thorax and abdomen.

The genus is also characterized by its very long and straight venation; forewing with sparse and short discal setae and short marginal fringes; very long scutum; laterally compressed abdomen; large hypogynium; prominent reticulate sculpturing on hind femur; and generally large body size (*T. gargantua* Girault measuring about 1.6 mm. in length). The antennae vary among the species but the funicle is basically of two obliquely used segments; the club may be of two or three segments with longitudinal sensoria and large bristles; the mandibles have 4 teeth; the maxillary palp is of a single segment.

Thoreauia is closely related to *Pteryogramma*. Both genera have the same type of straight venation and the forewings are generally similar. Both genera tend to have a lateral compression of the abdomen. *Pteryogramma* differs by lacking a forward projection of the valvifers into the thorax; it has a shorter scutum and it lacks a funicle. The original ancestral stock was probably related to that which produced *Chaetostricha* (formerly *Centrobria* of authors).

SPECIES OF *THOREAUIA*.

1. *T. compressiventris* GIRAULT, 1916, Entom., vol. 49, p. 103.
2. *T. gargantua* (GIRAULT), 1923, Loves Wooded and Won in Australia. Privately published, p. 3, (*Austrobelia*). (New combination.)
3. *T. gemma* (GIRAULT), 1920, Insec. Inscit. Menstr., vol. 8, p. 203, (*Tennysonianana*). (New combination.)

Genus *Trichogrammatomyia* Girault

Trichogrammatomyia GIRAULT, 1916, Can. Ent., vol. 48, p. 268.

TYPE SPECIES. *Trichogrammatomyia tortricis* Girault.

TYPE LOCALITY. Guelph, Ontario, Canada.

DISTRIBUTION. Ontario, New Brunswick, New York, Connecticut.

COMMENTS. The genus is represented by the single species which is a parasite of the eggs of tortricids in the northeastern part of the North American continent. The female antenna has a two-segmented club; the male club is three-segmented. The apical club segment of the female antenna has an oblique ventral surface bearing sensilla placodea. The male club is pointed apically and bears forward projecting setae. The habitus of this genus suggests a relationship with *Trichogrammatoidea*.

SPECIES OF *TRICHOGRAMMATOMYIA*.

1. *T. tortricis* GIRAULT, 1916, Can. Ent., vol. 48, p. 268.

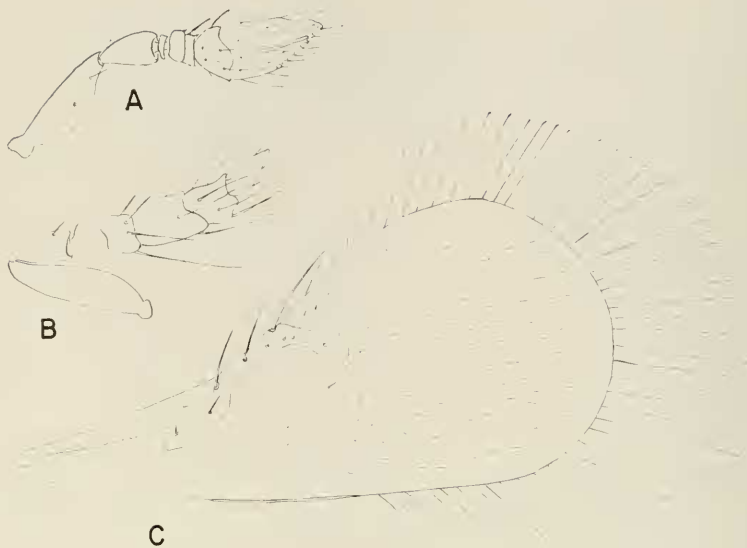


FIGURE 57. *Trichogrammatomyia tortricis* Girault. A. Antenna of female; B. antenna of male; C. forewing.

Genus *Brachyia* Strand

Brachygramma GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 86-87.

Brachyia STRAND, 1926, Arch. f. naturgeschichte, A, vol. 92, p. 52. (New name for *Brachygramma* Girault, preoccupied by *Brachygramma* Day.)

TYPE SPECIES. *Brachygramma biclavatum* Girault.

TYPE LOCALITY. Nelson (Cairns), Queensland.

DISTRIBUTION. Queensland.

COMMENTS. *Brachyia* has a very definite median sulcus on the thorax. The antennal sockets are low on the face near the border of the clypeus. The antenna has a single annellus, two transversely divided funicle segments, and a stalked, swollen club with two distinct segments. The terminal club segment has an oblique ventral surface but it is without sensilla placodea. The marginal vein is short, straight, and broad; the stigmal vein is short and broad without a constriction. The discal setae are arranged in lines and the vein tracks are distinct but RS_1 is absent. The marginal cilia are remarkably short. The ovipositor is very small and is located in the distal one-third of the abdomen.

SPECIES OF *BRACHYIA*.

1. *B. atrum* (GIRAULT), 1920, Insec. Inscit. Menstr., vol. 8, p. 201, (*Brachygramma*).
2. *B. biclavatum* (GIRAULT), 1912, Mem. Queensland Mus., vol. 1, pp. 87-88, (*Brachygramma*).

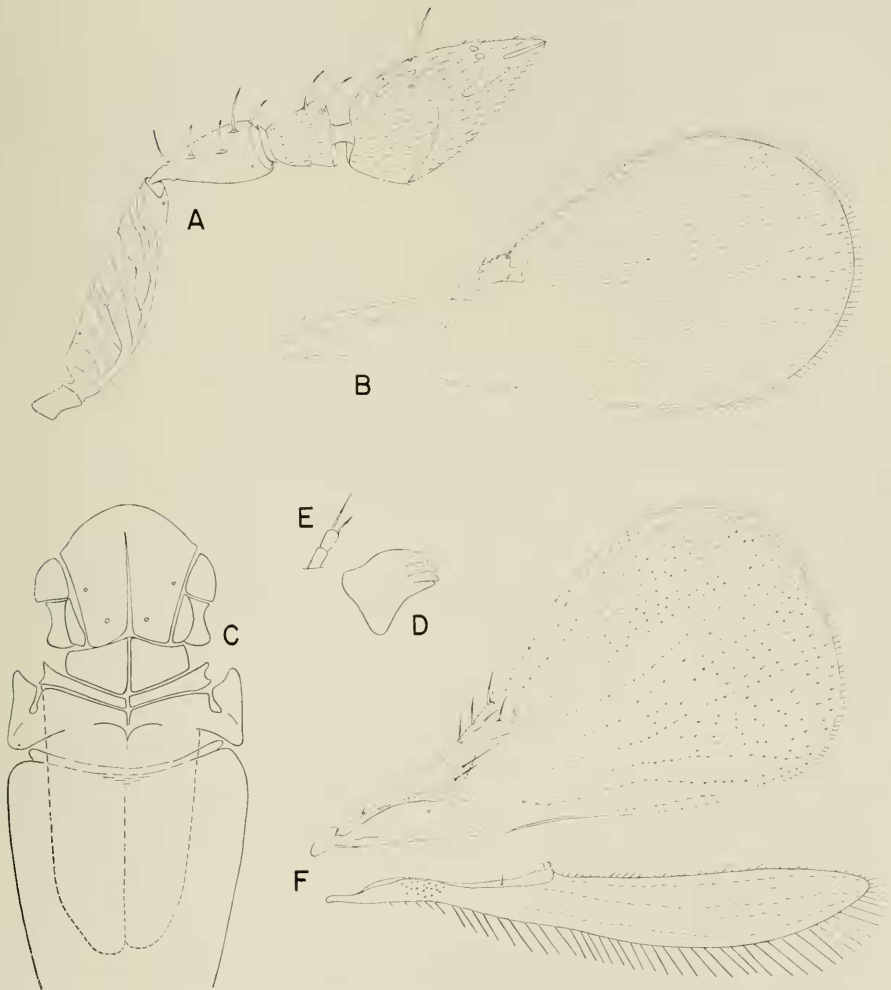


FIGURE 58. A. *Brachyia biclavatum* (Girault), antenna of female; B. forewing of female. C. *Brachyia atrum* (Girault), body of female; D. mandible; E. maxillary palp; F. wings.

Genus *Xenufens* Girault

Xenufens GIRAULT, 1916, Ent. News, vol. 27, pp. 5-6.

TYPE SPECIES. *Xenufens ruskini* Girault.

TYPE LOCALITY. Lakeland, Florida.

DISTRIBUTION. Known only from type locality.

COMMENTS. *Xenufens* has an unusual antenna. There is an annellus followed by two very wide, thin, almost disk like funicle segments. The club is short,



FIGURE 59. *Xenufens ruskini* Girault. A. Antenna; B. forewing.

expanded and consists of two distinct and a partially divided third segment. The ovipositor is very short at the distal portion of the abdomen.

We think the name *Xenufens* is misleading, for it tends to suggest a relationship to *Ufens*. We can see no association between these genera whatsoever. The wings indicate a relationship with *Trichogramma*.

SPECIES OF *XENUFENS*.

1. *X. ruskini* GIRAULT, 1916, Ent. News, vol. 27, p. 6.

Genus *Paracentrobia* Howard

Paracentrobia HOWARD, 1897, Jour. Linn. Soc. London Zool., vol. 26, p. 178. Subgenus *Paracentrobia* HOWARD, new status.

Abbella GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 27, pp. 9-11. (New synonymy.)

Ittys GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 25-26. (New synonymy.) Subgenus *Ittys* Girault, new status.

Brachistella GIRAULT, 1911, Jour. N. Y. Ent. Soc., vol. 19, p. 184. (New synonymy.) Subgenus *Brachistella* Girault, new status.

Jassidophthora PERKINS, 1912, Bull. Expt. Sta. Hawaiian Sugar Planters' Assn., Ent. Ser., Bull. 10, p. 17. (New synonymy.)

Abbellisca GHESQUIÈRE, 1946, Rev. Zool. Bot. Afr., vol. 34, p. 371. (New synonymy.)

TYPE SPECIES. *Paracentrobia punctata* Howard.

TYPE LOCALITY. Grenada, West Indies.

DISTRIBUTION. Worldwide.

COMMENTS. This large, cosmopolitan genus has clusters of species which make good subgenera but which cannot easily be handled at the generic level because of their tendency to intergrade. The extremes of these subgenera do seem to be distinct and their initial discovery led authors to describe them in separate genera. The accumulation of more material for study has shown that the groups do overlap and this has eroded the rigid generic limits formerly imposed. The subgenus *Brachistella* blends into the subgenus *Paracentrobia* which

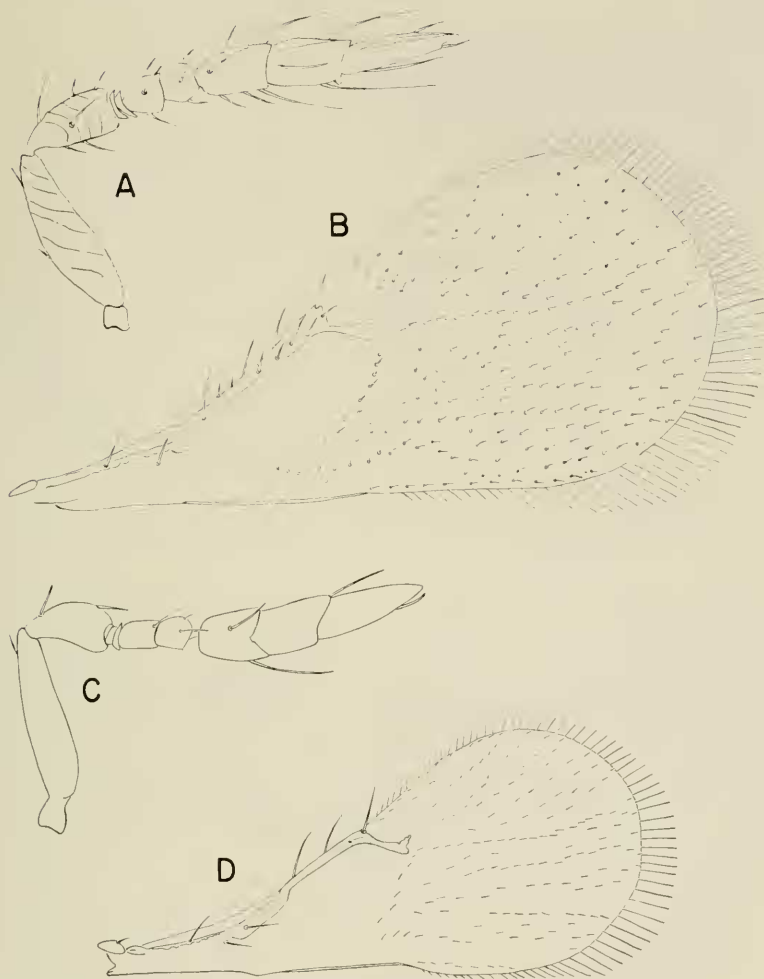


FIGURE 60. A. *Paracentrobia (Ittys) cerasarum* (Ashmead), antenna of female; B. forewing. C. *Paracentrobia (Ittys) perditrix* (Gahan), antenna of female; D. forewing.

in turn blends into the subgenus *Ittys*. The subgenera *Brachistella* and *Ittys* are comparatively distinct.

The type specimen of *Paracentrobia punctata* is in the British Museum (Natural History). Our examination of this specimen showed it to be congeneric with the genera synonymized above.

SPECIES OF *PARACENTROBIA*.

1. *P. acuminata* (ASHMEAD), 1888, Can. Ent., vol. 20, p. 107, (*Trichogramma*). (New combination.)
= *T. pallida* (ASHMEAD), 1900, Ent. News, vol. 11, p. 616, (*Brachista*).

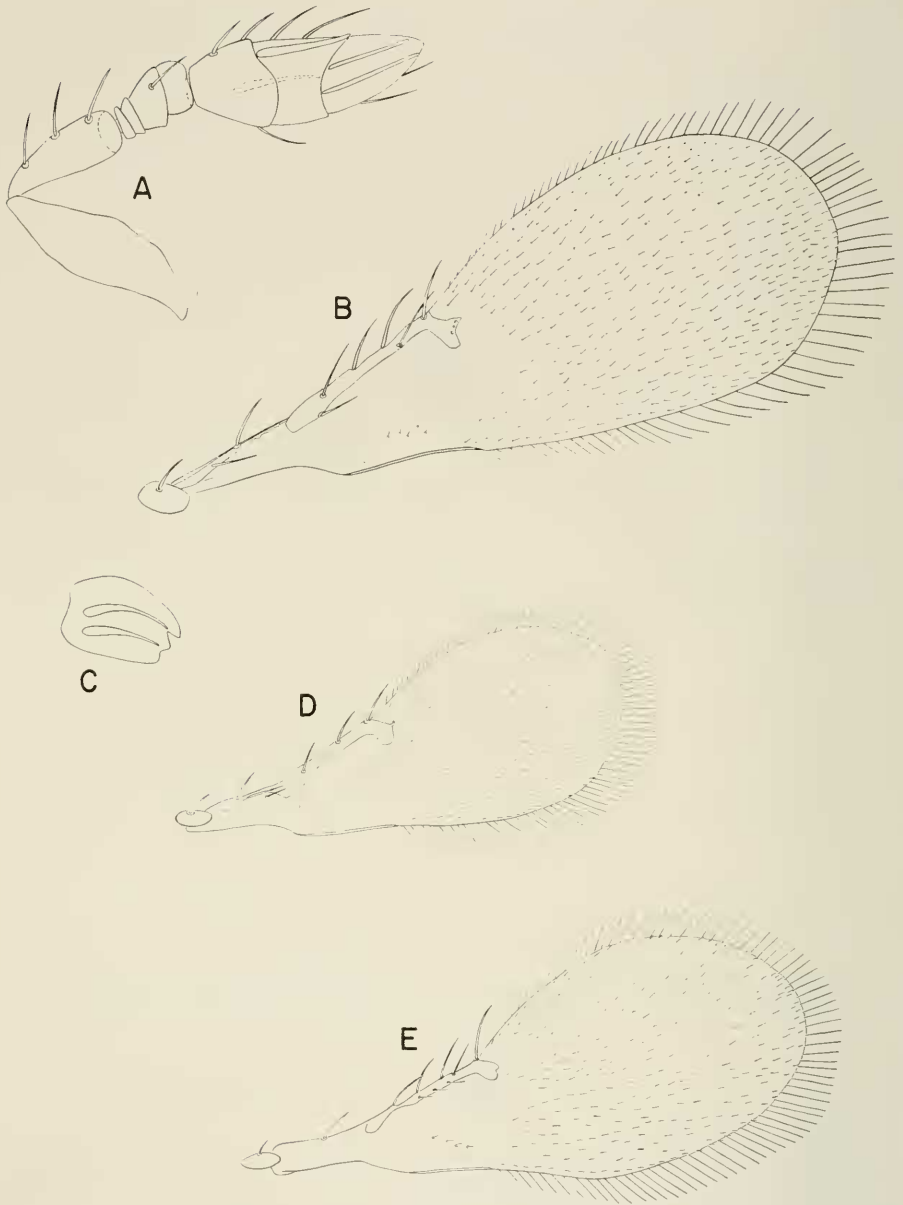


FIGURE 61. A. *Paracentrobia (Brachistella) bicolor* (Girault), antenna of female; B. forewing; C. mandible. D. *Paracentrobia (Brachistella) prima* (Perkins), forewing. E. *Paracentrobia (Brachistella) acuminata* (Ashmead), forewing.

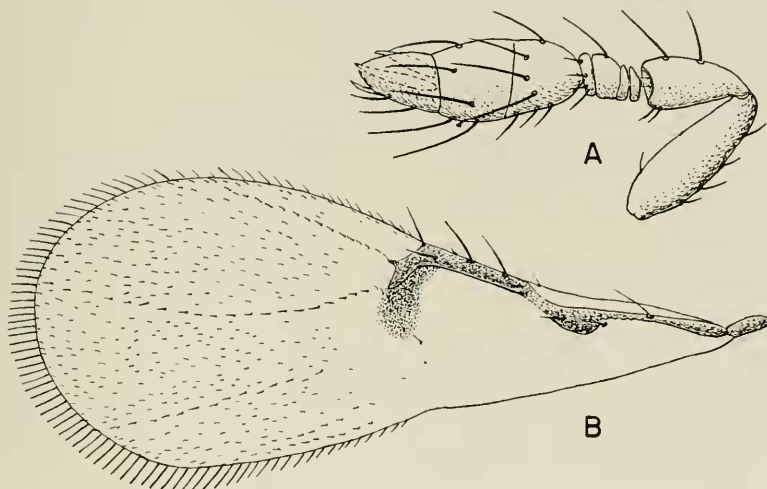


FIGURE 62. *Pracentrobia punctata* Howard (from type). A. Antenna; B. forewing of female.

2. *P. americana* (GIRAULT), 1917, Proc. U. S. Natl. Mus., vol. 53, p. 445, (*Abbella*). (New combination.)
3. *P. andoi* (ISHII), 1938, Kontyû, vol. 12, p. 179, (*Japania*). (New combination.)
= *P. fasciata* (ISHII), 1938, Kontyû, vol. 12, p. 180, Lapsus for *P. andoi* (Ishii).
4. *P. annae* (KARPINSKI), 1954, Roczn. Nauk Les., vol. 4, p. 61, (*Centrobia*). (New combination.)
5. *P. auriscutellum* (GIRAULT), 1916, Ent. News, vol. 27, p. 4, (*Abbella*). (New combination.)
6. *P. bicolor* (GIRAULT), 1912, Mem. Queensland Mus., vol. 1, p. 68, (*Brachistella*). (New combination.)
7. *P. ceresarum* (ASHMEAD), 1888, Can. Ent., vol. 20, p. 107, (*Trichogramma*). (New combination.)
8. *P. dimorpha* (KRYGER), 1932, Bull. Soc. Ent. Egypte (1932), p. 40, (*Abbella*). (New combination.)
9. *P. ducassei* (DOZIER), 1932, Proc. Ent. Soc. Wash., vol. 34, p. 30, (*Abbella*). (New combination.)
10. *P. immaculata* (GIRAULT), 1913, Mem. Queensland Mus., vol. 2, p. 103, (*Abbella*). (New combination.)
11. *P. livii* (GIRAULT), 1918, North American Hymenoptera Trichogrammatidae. Privately published, p. 11, (*Neobrachistella*). (New combination.)
12. *P. lutea* (FULLAWAY), 1914, Proc. Hawaiian Ent. Soc., vol. 3, pp. 22-23, (*Jassidophthora*). (New combination.)
13. *P. mariellae* (FERRIÈRE), 1931, Bull. Ent. Res., vol. 22, p. 292, (*Abbella*). (New combination.)
14. *P. masovica* (NOWICKI), 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 638, (*Abbella*). (New combination.)
15. *P. mira* (GIRAULT), 1913, Mem. Queensland Mus., vol. 2, p. 102, (*Abbella*). (New combination.)

16. *P. monotrache* (NOWICKI), 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 637, (*Abbella*). (New combination.)
17. *P. nymphea* (GIRAULT), 1911, Entomologist, vol. 44, pp. 197-198, (*Abbella*). (New combination.)
18. *P. perditrix* (GAHAN), 1918, Proc. Ent. Soc. Wash., vol. 20, p. 25, (*Abbella*). (New combination.)
19. *P. platycotis* (DOZIER), 1932, Proc. Ent. Soc. Wash., vol. 34, p. 32, (*Ittys*). (New combination.)
20. *P. prima* (PERKINS), 1912, Hawaiian Sugar Planters' Assn., Ent. Bull. 10, p. 18, (*Jasidophthora*). (New combination.)
21. *P. pulchella* (CLARIDGE), 1959, Proc. Roy. Ent. Soc. London, vol. 28, pp. 129-131, (*Monorthochaeta*). (New combination.)
22. *P. punctata* HOWARD, 1897, Jour. Linn. Soc. London (Zool.), vol. 26, p. 178.
23. *P. sexguttata* (GIRAULT), 1915, Mem. Queensland Mus., vol. 3, p. 146, (*Abbella*). (New combination.)
24. *P. subflava* (GIRAULT), 1911, Trans. Amer. Ent. Soc., vol. 37, p. 12, (*Abbella*). (New combination.)
25. *P. subflavella* (GIRAULT), 1916, Mem. Queensland Mus., vol. 5, p. 205, (*Abbella*). (New combination.)
26. *P. tenuinervis* (NOWICKI), 1940, Zeit. angew. Ent. Berlin, vol. 26, pp. 629-630, (*Ufens*). (New combination.)
27. *P. tomaspidis* (PICKLES), 1932, Bull. Ent. Res., vol. 23, p. 206, (*Abbella*). (New combination.) (This species is provisionally placed here. The figure of the antenna suggests that this may not be *Paracentrobia*.)
28. *P. xanthogaster* (GIRAULT), 1912, Mem. Queensland Mus., vol. 1, pp. 69-70, (*Abbella*). (New combination.)
29. *P. zabinskii* (NOWICKI), 1936, Zeit. angew. Ent. Berlin, vol. 23, pp. 121-124, (*Abbella*). (New combination.)
= *P. aspilogastra* (NOWICKI), 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 636, (*Abbella*). (New synonymy.)

Genus *Brachyufens* Viggiani, new genus

TYPE SPECIES. *Ufens osborni* Dozier.

TYPE LOCALITY. Central Aquirre, Puerto Rico.

DISTRIBUTION. Puerto Rico, Florida.

COMMENTS. This genus is separated by the characters outlined in the key and illustrated in figure 63, especially the widely expanded base of the pre-marginal vein which forms a large triangular structure with the radial process. The marginal vein is very short. Certain characters of the antennae and wings suggest a relationship to *Ufens*.

SPECIES OF *BRACHYUFENS*.

1. *B. osborni* (DOZIER), 1932, Proc. Ent. Soc. Wash., vol. 34, p. 36.

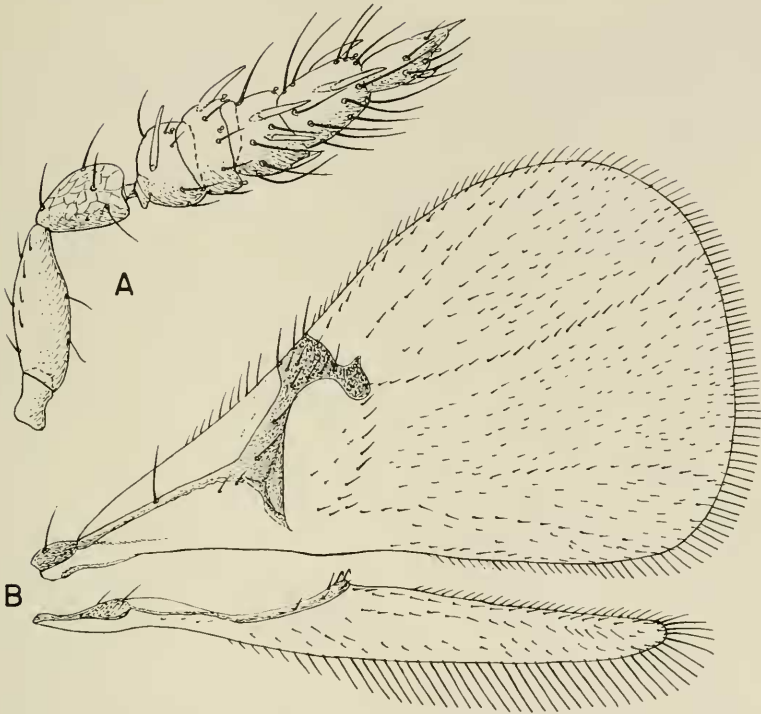


FIGURE 63. *Brachyufens osborni* (Dozier). A. Antenna of female; B. wings of female.

Genus *Urogramma* Girault

Urogramma GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 42.

TYPE SPECIES. *Urogramma minuta* Girault.

TYPE LOCALITY. Sydney, New South Wales.

DISTRIBUTION. Australia; New South Wales, Queensland.

COMMENTS. This genus is readily recognized by the venation which consists of a very short stigmal vein and a very short, nearly quadrate marginal vein separated from the premarginal vein by a break. The club is swollen, three-segmented, and the terminal segment has an oblique ventral surface. There are two short and compressed funicle segments and two annelli. The thorax has a median sulcus and the scutellum is somewhat diamond shaped. The ovipositor is very short and is located on the distal one-third of the abdomen. The basal segments of the fore and hind tarsi are very short, nearly quadrate.

Three species have been described by Girault. The type of *Urogramma minuta* was not found, the type of *U. lucrum* Girault is too fragmented to be used, and therefore this analysis is based upon the type of *U. latreille* Girault.

SPECIES OF *UROGRAMMA*.

1. *U. latreille* GIRAULT, 1929, New pests from Australia VI. Privately published, p. 3.

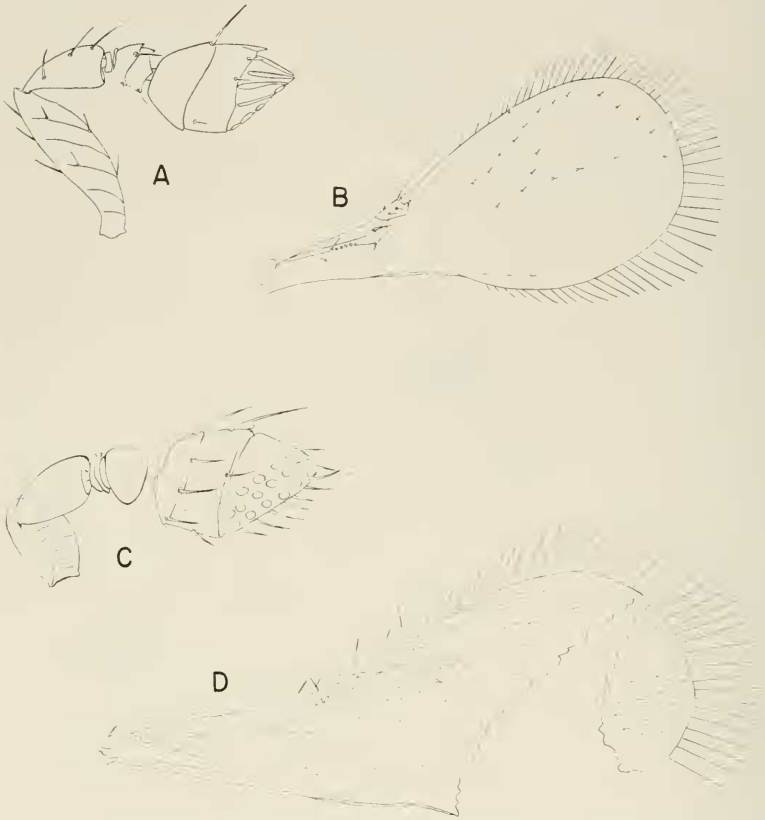


FIGURE 64. A. *Urogramma latreillei* Girault, antenna of female; B. forewing. C. *Xenufensia tennysoni* (Girault), antenna of female; D. wing.

2. *U. lucrum* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, p. 202.

3. *U. minuta* GIRAULT, 1920, Insec. Inscit. Menstr., vol. 8, pp. 42-43.

Genus *Neobrachista* Girault

Neobrachista GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 70.

TYPE SPECIES. *Neobrachista fasciata* Girault.

TYPE LOCALITY. Nelson (Cairns), Queensland.

DISTRIBUTION. Queensland.

COMMENTS. The trichogrammatids in *Neobrachista* are relatively large, approximately 0.80 mm. in length. The body is usually yellowish with distinct black bands on the abdomen, which is moderately elongate, pointed. The ovipositor originates near base of abdomen and is only slightly exerted; hypogynium not evident. Thorax slightly wider than head and abdomen; scutellum with median sulcus. Forewings hyaline; prominent radial process at base of premarginal vein. Inner border of premarginal, marginal and stigmal veins

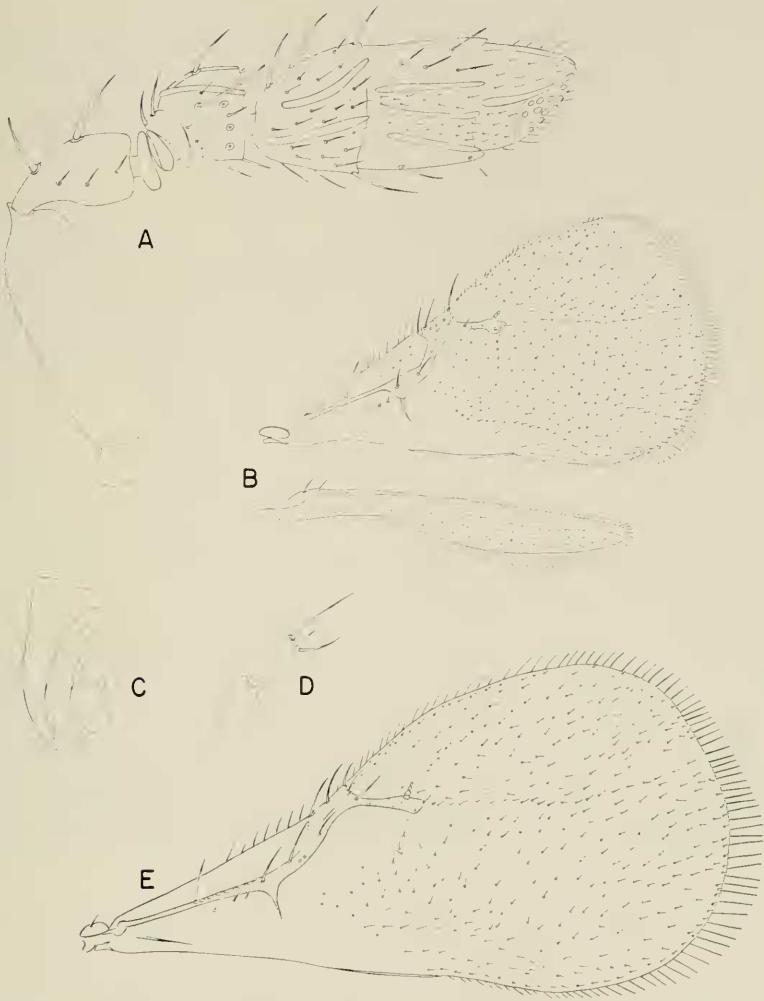


FIGURE 65. A. *Neobrachista trifasciata* Girault, antenna of female; B. forewing; C. mandible; D. maxillary palp. E. *Neobrachista fasciata* Girault, forewing of female.

smoothly sinuate. Marginal vein shorter than either premarginal or stigmal veins, its basal limits difficult to see; stigmal vein is longer and slender. Forewing disc with dense discal setae; vein tracks RS_1 and Cu tend to converge basally. Maxillary palp two-segmented. Antennae of both sexes basically similar, consisting of somewhat expanded scape; short, rounded pedicel; two annelli; two funicle segments, the first small, the second much larger and somewhat quadrate; club three-segmented, the terminal segment has oblique ventral surface bearing sensilla placodea and upward-curving spines.

Girault has separated several species on the basis of color and the character of the dorsal bands on the abdomen. These are not very substantial differences and doubts are raised on the validity of some species. *Neobrachista javae* Girault does not belong here, but *Japania carbajali* Girault should be included in this genus.

SPECIES OF *NEOBRACHISTA*.

1. *N. carbajali* (GIRAULT), 1931, A new habit in an old insect, *Homo pudicus* and new Eurytomidae. Privately published, p. 4, (*Japania*). (New combination.)
2. *N. fasciata* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 71.
= *N. nigriventris* GIRAULT, 1913, Mem. Queensland Mus., vol. 2, p. 101.
3. *N. incompta* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, pp. 142-143.
4. *N. novifasciata* GIRAULT, 1913, Mem. Queensland Mus., vol. 2, p. 101.
= *N. leptopsi* GIRAULT, 1932, New Pests from Australia X. Privately published, p. 5.
5. *N. trifasciata* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 142.

Genus *Xenufensia* Girault

Xenufensia GIRAULT, 1938, Rev. Ent. Rio de Janeiro, vol. 9, p. 385.

TYPE SPECIES. *Xenufens tennysoni* Girault.

TYPE LOCALITY. Watsonville, Queensland.

DISTRIBUTION. Known only from type locality.

COMMENTS. A distinguishing character of this genus is the scape which is short, expanded; pedicel nearly as long as scape. There are two annelli; the funicle is two-segmented with the first segment small, scale-like, the second much larger. Figure 64(c). The maxillary palp is two-segmented. The ovipositor is long and partially exerted. The marginal and stigmal veins are subequal; a short postmarginal is present. The premarginal vein is somewhat expanded at the base. Figure 64(d). *Xenufensia* is rather closely related to *Neobrachistella* Girault.

SPECIES OF *XENUFENSIA*.

1. *X. tennysoni* (GIRAULT), 1920, Insec. Inscit. Menstr., vol. 8, p. 203, (*Xenufens*).

Genus *Neocentrobia* Girault

Neocentrobia GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 91-92.

TYPE SPECIES. *Neocentrobia cara* Girault.

TYPE LOCALITY. Cooktown, Queensland.

DISTRIBUTION. Known only from type locality.

COMMENTS. This genus is known from a single crushed and fragmented specimen mounted under a coverslip with four females of *Tumidiclava ciliata* Girault. From the fragments the antennal formula appears to include at least one annellus, a two-segmented funicle with the basal segment very short, and a swollen three-segmented club. The club bears forward-curving spines and the terminal segment has sensilla placodea and upward-curving short spines on its

ventral surface. It is close to *Neobrachistella* Girault but may be differentiated by the forewings which are not so wide distally, have long marginal cilia, and the disc without vein tracks.

SPECIES OF *NEOCENTROBIA*.

1. *N. cara* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 92-93.

Genus *Neobrachistella* Girault

Neobrachistella GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 89.

TYPE SPECIES. *Neobrachistella maxima* Girault.

TYPE LOCALITY. Nelson, Queensland.

DISTRIBUTION. Queensland.

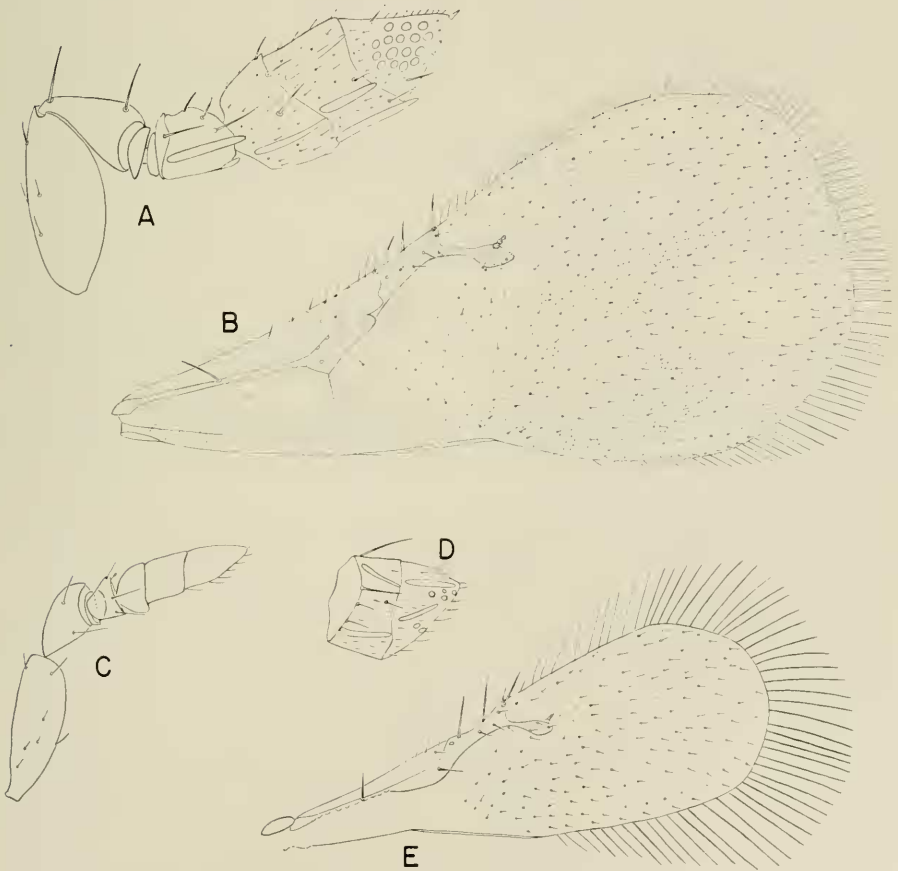


FIGURE 66. A. *Neobrachistella maxima* Girault, antenna of female; B. forewing of female. C. *Neocentrobia cara* Girault, antenna of female; D. detail of club termination; E. forewing of female.

COMMENTS. This genus is known from two female specimens. There is a very distinct median sulcus through the entire thorax. The abdomen is long, pointed and the ovipositor is well developed. It originates near the base of the abdomen and its valvulae are near the apex of the abdomen and exerted for most of their length. The hypogynium is very small, basal and difficult to see.

The forewings are somewhat fumated and are quite dark at the radial process. The subcostal vein is long, the costal cell is well developed and contains a row of about eight strong setae at its anterior border and a few smaller setae within the cell. The premarginal vein is broad at the base but suddenly narrows immediately before reaching the marginal vein. The marginal vein is as long as the stigmal which has a slender neck that terminates in a lemon-shaped expansion. The discal setae are short and abundant. The vein tracks are suppressed and r-m is the only one that is complete and distinct.

The scape is short, expanded and about twice the length of the pedicel. There are two annelli and two funicle segments, the second being much larger than the first. The club is short, three-segmented and swollen. The genera *Neobrachista*, *Neocentrobia* Girault, and *Neobrachistella* are closely related. The species *Neobrachistella livii* Girault is incorrectly placed in this genus for it is *Paracentrobia* (subgenus *Ittys*).

SPECIES OF *NEOBRACHISTELLA*.

1. *N. maxima* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 90.

Genus *Zagella* Girault

Zagella GIRAULT, 1918, North American Hymenoptera Trichogrammatidae. Privately published, Sydney, pp. 2, 7.

Burksiella DESANTIS, 1957, Notas Museo, La Plata, vol. 19, p. 133. (New synonymy.)

TYPE SPECIES. *Paracentrobia flavipes* Girault.

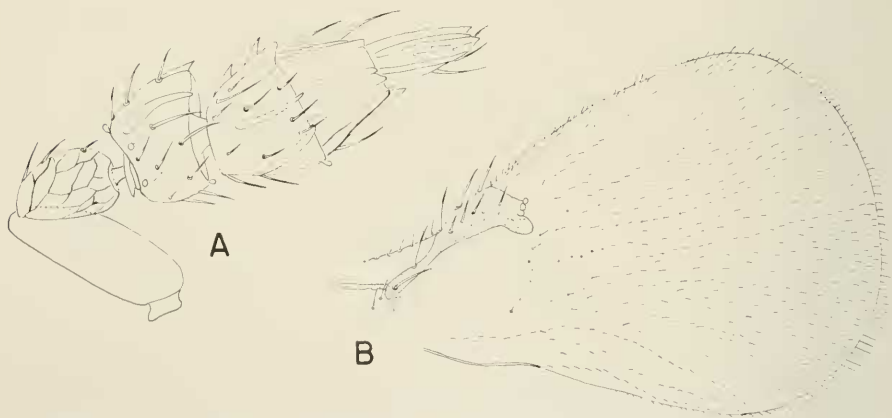


FIGURE 67. *Zagella flavipes* (Girault). A. Antenna of female; B. forewing of female.

TYPE LOCALITY. Fort Valley, Georgia.

DISTRIBUTION. Georgia, California, Argentina.

COMMENTS. The descriptions by Girault are in error regarding the antennal structure. There are two annelli, the first is distinct but the second is very difficult to discern as it is a very tiny flat scale appressed closely to the first funicle segment. There are two funicle segments, not just one as Girault states. The first funicle segment is small but it can be seen in the type series. The antennal club is short, three-segmented and conical in shape. It is quite setaceous and bears some longitudinal sensilla. The wings are very broad apically and the vein tracks are distinct. The marginal vein is short, broad and clavate; the stigmal vein is thick and not constricted. The genus may be related to *Lathrogramma* from which it is distinguished by the different antennal formula.

SPECIES OF *ZAGELLA*.

1. *Z. flavipes* (GIRAULT), 1905, Ent. News, vol. 16, p. 287, (*Paracentrobia*).
2. *Z. subannulata* (DESANTIS), 1957, Notas Mus. La Plata, vol. 19, pp. 134-137, (*Burksiella*). (New combination.)

Genus *Japania* Girault

Japania GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 44-45.

Parufens GIRAULT, 1913, Rev. Russe Ent., vol. 13, p. 292. (New synonymy.)

Parufens GIRAULT, 1913, Mem. Queensland Mus., vol. 2, p. 202.

Parufens GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 146.

TYPE SPECIES. *Japania ovi* Girault.

TYPE LOCALITY. China.

DISTRIBUTION. China, Australia.

COMMENTS. The type specimen is so badly fragmented that an absolute analysis of the genus is impossible. The diagnosis of *Japania* has been made from the type specimen at the U. S. National Museum, from a paratype at the Illinois Natural History Survey, Urbana, and this has been supplemented by a study of the types of three Australian species described by Girault as *Japania*.

The club is three-segmented and is somewhat elongate. The terminal segment is conical, the middle segment is large and the widest of the club segments. The basal segment is the smallest and tends to overlap the middle segment whereas the division between the middle and apical segment is transverse. The funicle is two-segmented; the segments small and transverse. At least one annellus is present. The mandible has three teeth; the maxillary palp is two-segmented. The ovipositor is well developed but not exerted; a large hypogynium is present. The marginal vein is short; the stigmal is elongated and has a constricted neck. The wings tend to be rounded apically. Although vein track RS_1 is merely suggested on the fragmented wing of the type specimen it is present in the Australian species, *J. tristis* Girault and *J. ruskini* Girault. Two species have been incorrectly placed in this genus, namely *J. carbajali* Girault which belongs in *Neobrachista*, and *J. andoi* Ishii which is in the genus *Paracentrobia*.

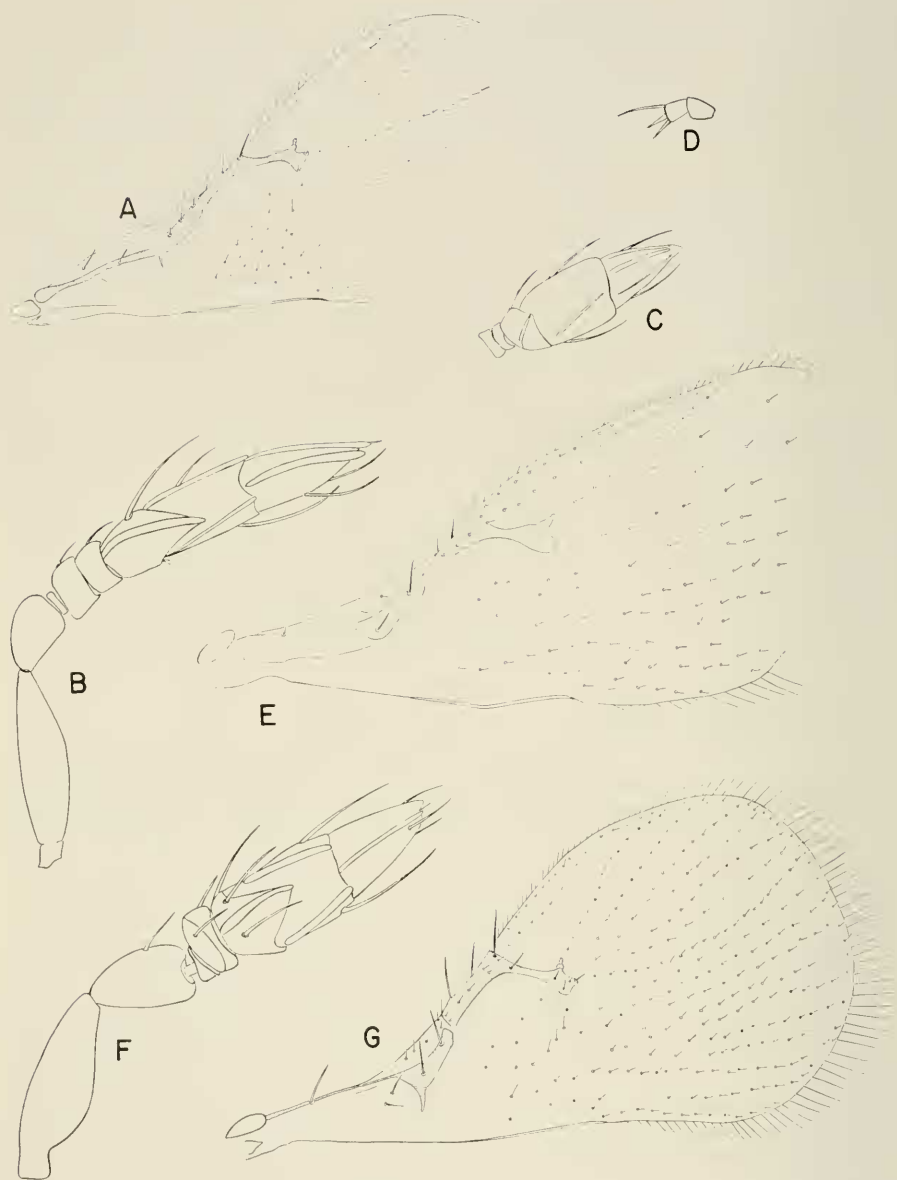


FIGURE 68. *Japania* species. A. *J. ruskini* Girault, wing. B. *J. ovi* Girault, antenna of female; C. female club (type, USNM); D. maxillary palp; E. forewing. F. *J. tristis* Girault, antenna; G. wing.

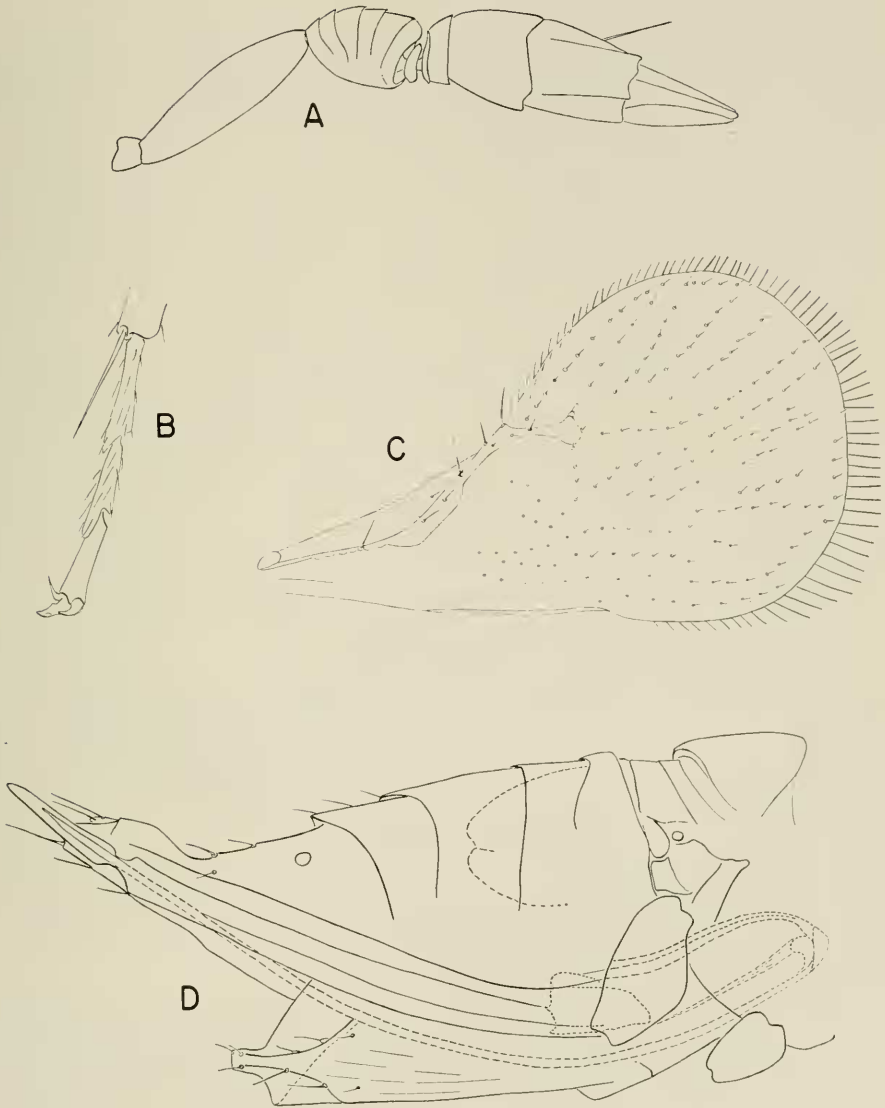


FIGURE 69. A. *Japania argentipes* (Girault), antenna of female; B. middle tibial spur of male; C. forewing of female. D. *Japania tristis* Girault, ovipositor structure.

Girault first described *Parufens* as a subgenus of *Ufens* and later gave it separate status as a genus. A careful study of *Parufens* shows that the original description is in error for the type specimen has two funicle segments, not just one. The first funicle segment is short and transverse; the second segment is barely visible in the type specimen but is present as a small scale-like segment

between the first funicle segment and the base of the club. It is more evident in the species described as *Parufens argentitibiae* Girault and *Parufens ipswichia* Girault. The male of the type species has two distinct funicle segments. The differences between *Japania* and *Parufens* are so slight that they must now be regarded as congeneric.

We believe that there is a relationship between *Japania* and the subgenus *Trachocera* of *Mirufens*. The female antennae are similar in the characteristics of the club and its sensoria, and there are also similarities in the wings. The marked sexual dimorphism of the male antenna in *Trachocera* is not seen in *Japania*.

SPECIES OF *JAPANIA*.

1. *J. argentitibiae* (GIRAULT), 1915, Mem. Queensland Mus., vol. 3, p. 146, (*Parufens*). (New combination.)
2. *J. argentipes* (GIRAULT), 1913, Mem. Queensland Mus., vol. 2, p. 102, (*Parufens*). (New combination.)
3. *J. ipswichia* (GIRAULT), 1922, The true remedy for headlice, dedication of a new animal to the quality of majesty and so forth. Privately published, p. 1, (*Parufens*). (New combination.)
4. *J. ovi* GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 44-45.
5. *J. ruskini* GIRAULT, 1929, New pests from Australia VI. Privately published, p. 3.
6. *J. tristis* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 74-75.

Genus *Ufens* Girault

Ufens GIRAULT, 1911, Trans. Amer. Ent. Soc., vol. 37, pp. 32-35.

Ufensia GIRAULT, 1913, Mem. Queensland Mus., vol. 2, p. 101. (New synonymy.)

Ufensia GIRAULT, 1914, Proc. Ent. Soc. Wash., vol. 16, p. 118. (New synonymy.)

Neocentrobia BLOOD, 1923, Ann. Rept. Proc. Bristol Nat. Soc., vol. 5, p. 254.

Neocentrobia BLOOD AND KRYGER, 1928, Ent. Medd., vol. 16, p. 203.

Stephanotheisa SOJKA, 1931, Natuurh. Maandbl., vol. 20, p. 111.

Grantanna GIRAULT, 1939, Ohio Jour. Sci., vol. 39, p. 324. (New name for *Neocentrobia* Blood, not Girault, preoccupied.)

TYPE SPECIES. *Trichogramma nigrum* Ashmead.

TYPE LOCALITY. Centralia, Illinois.

DISTRIBUTION. Worldwide.

COMMENTS. The wings of *Ufens* are characteristically very broad oblate and nearly truncate apically. The marginal vein of the forewing is short; the stigmal is as long as the marginal. The vein tracks are very distinct. There is marked sexual dimorphism in the antennae. The female antenna has two funicle segments which are obliquely divided and the junction is confused; the club is three-segmented. The male antenna has a four-segmented club with whorls of curved bristles; the terminal segment is very small. There is considerable variation in the length of the abdomen and ovipositor among the females of the various species. In some the abdomen is short and obliquely angled from the insertion of the ovipositor on venter to the dorsal aspect distally. In other species the abdomen is moderately long and the ovipositor is inserted at its base; these

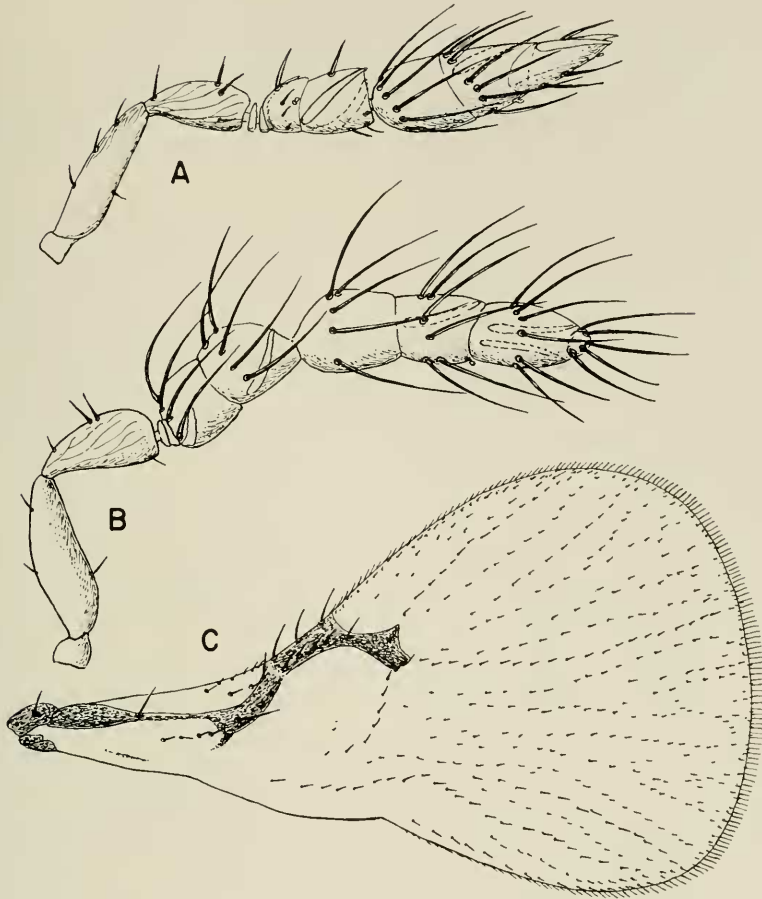


FIGURE 70. *Ufens* species. A. Antenna of female; B. antenna of male; C. forewing.

species were considered to be distinct by Girault who put them in a separate genus *Ufensia*. There are so many intergradations among these species that we cannot retain *Ufensia* as a separate genus and have therefore placed it in synonymy.

SPECIES OF *UFENS*.

1. *U. albitibiae* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 145.
2. *U. beneficus* DOZIER, 1932, Proc. Ent. Soc. Wash., vol. 34, p. 33.
3. *U. binotatus* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, pp. 145-146.
4. *U. dilativena* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 625.
5. *U. diogenae* (RISBEC), 1951, Mem. Inst. Fr. Afr. Noire, vol. 13, p. 400. (*Lathromeris*).
(New combination, but placed here with reservations.)
6. *U. elimaeae* TIMBERLAKE, 1927, Proc. Haw. Ent. Soc., vol. 6, p. 525.
7. *U. flavipes* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 72.

8. *U. foersteri* (KRYGER), 1918, Ent. Medd., vol. 12, p. 291, (*Centrobia*).
= *U. irregularis* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 572.
= *U. meridionalis* NOWICKI, 1935, Zeit. angew. Ent. Berlin, vol. 21, p. 572.
= *U. vitoldi* (SOJKA), 1931, Natuurh. Maandbl., vol. 20, (*Stephanotheisa*).
9. *U. hercules* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, p. 73.
10. *U. hirticorins* (BLOOD), 1923, Ann. Rep. Proc. Bristol Nat. Soc., vol. 5, p. 254, (*Neocentrobia*).
11. *U. luna* GIRAULT, 1911, Entomologist, vol. 44, pp. 198-199.
12. *U. niger* (ASHMEAD), 1888, Can. Ent., vol. 20, p. 107, (*Trichogramma*).
13. *U. picipes* GIRAULT, 1912, Mem. Queensland Mus., vol. 1, pp. 71-72.
14. *U. pretiosa* (GIRAULT), 1913, Mem. Queensland Mus., vol. 2, p. 102, (*Ufensia*).
15. *U. quadrifasciatus* GIRAULT, 1915, Mem. Queensland Mus., vol. 3, p. 145.
16. *U. similis* (KRYGER), 1932, Bull. Soc. Ent. Egypte (1932), p. 42, (*Neocentrobia*).
= *U. megaloptila* NOWICKI, 1940, Zeit. angew. Ent. Berlin, vol. 26, p. 624.
17. *U. spiritus* GIRAULT, 1918, North American Hymenoptera Trichogrammatidae. Privately published, p. 6.
= *U. americanus* GIRAULT, 1918, North American Hymenoptera Trichogrammatidae. Privately published, p. 6.

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This index is provided to facilitate reference to the names of genera and lower categories used in this article. The current generic placement of each species name is listed first; the original generic placement, if different, follows in parenthesis. Names in italics are synonyms or otherwise invalid.

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